

**Choose the correct answer:**

1. What is the name of the chemical reaction in which elements and compounds join together to create a single product?

- a. Decomposition reaction
- b. Substitution reaction
- c. Direct combination reaction
- d. Neutralization reaction

2. The electric generator works on changing.....energy to .....energy.

- a. Mechanical- electric
- b. Electric- mechanical
- c. Electric- heat
- d. No correct answer

3. Chemical reactions are used in .....

- a. medicines industry.
- b. fertilizers industry.
- c. food industry.
- d. all of the previous answers.

4. The gases that cause respiratory system malfunction are .....

- a. carbon oxides
- b. Sulphur oxides
- c. nitrogen oxides
- d. (b), (c)

5. Oxides which affect the nervous system and the eye.

- a. Sulphur oxides
- b. Nitrogen oxides
- c. carbon oxides
- d. no correct answer

6. Iron filings are attracted to an iron bar when the electric current flows, due to the effect of .....

- a. gravity force
- b. electricity force
- c. electromagnetic force
- d. nuclear force

7. the molecule of carbon dioxide consists of one atom of carbon and two atoms of oxygen, knowing that the mass of carbon is 12 and that of oxygen is 16, so the mass of two molecules of carbon dioxide equals.....gm.
- a. 22                      b. 44                      c. 88                      d. 33
8. The object's weight changes by changing its.....
- a. volume.    b. velocity.  
c. position on Earth's surface.                      d. (b) and (c) together.
9. The electromagnet is used in making the ..... set.
- a. calculator    c. electric bell  
b. microscope    d. night vision
10. If the mass of an object decreases to its half, the weight.....
- a. increases to the double.                      b. decreases to half.  
c. still constant.    d. no correct.
11. Electric motor is used in the manufacture of..
- a. radio.    b. electric bell.    c. blender (mixer).    d. watch.
12. Which of the following chemical equations shows the reaction between ammonia and hydrogen chloride to form ammonium chloride.....
- a.  $\text{NH}_3 + \text{HCl} \rightarrow \text{NH}_4\text{Cl}$   
b.  $\text{NH}_4\text{Cl} + \text{H}_2\text{O} \rightarrow \text{HCl} + \text{NH}_4\text{OH}$   
c.  $\text{HCl} + \text{NaCl} \rightarrow \text{NaOH} + \text{H}_2\text{O}$   
d.  $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$

13. Carbon monoxide has a dangerous impact on human being and it may cause.....
- a. Building corrosion.
  - b. Headache and fainting.
  - c. Bombing.
  - d. No correct answer.
14. All of the following are electromagnetic waves except for the....
- a. thermal (infrared) rays.
  - b. visible light.
  - c. sound waves.
  - d. ultraviolet rays.
15. Which of the following is a unit of mass?
- a. The kilogram.
  - b. The newton.
  - c. Joule.
  - d. No correct answer.
16. All of the following are periodic motions except for.....
- a. the fan motion.
  - b. the pendulum motion.
  - c. the projectiles motion.
  - d. the light waves.
17. On applying the law of constant ratios on the following reaction
- $$2\text{Mg} + \text{O}_2 \xrightarrow{\triangle} 2\text{MgO}$$
- We will find [knowing that : Mg = 24 and O 16 J.
- a. each 48 g (Mg) combines with 32 g (O) to form 80 g (MgO).
  - b. each 24 g (Mg) combines with 16 g (O) to form 40 g (MgO).
  - c. each 12 g (Mg) combines with 8 g (O) to form 20 g (MgO).
  - d. (a), (b) and (c) are correct answers.
18. What does the triangle above the arrow in a chemical equation mean?
- a. Three substances present
  - b. Heat required
  - c. Diluted substances
  - d. Concentrated substances



- 5



**25. Which of the following is a unit of weight?**

- a. The kilogram.
- b. The newton.
- c. (a) and (b).
- c. No correct answer.

**26. From harms of friction forces is.....**

- a. stopping the car when using the brakes.
- b. landing slowly when using parachute.
- c. rising of blood in veins against gravity.
- d. increasing the temperature of gears of machines when operated a long time

**27. the reaction between the ammonia and hydrogen chloride is a.....**

- a. element with compound.
- b. compound with compound .
- c. element with element.
- d. all of the previous answers.

**28. The bright magnesium ribbon changes into a white powder of..... when it burns in air.**

- a. magnesium nitrite.
- b. magnesium oxide.
- e. magnesium hydroxide.
- d. magnesium dioxide.

**29. for an static object, it..... start to move unless a force acts on it.**

- a. will
- b. will not
- c. (a) & (b)
- d. No correct answer

**30..... oxides are resulted during the time of lightning.**

- a. Carbon
- b. Sulphur
- c. Nitrogen
- d. (a) and (b)

31. Which of the following statements best describes the way in which mass is conserved during chemical reactions?
- a. The total mass of reactants is equal to the total mass of products plus, the mass of oxygen.
  - b. The total mass of reactants is greater than total mass of products.
  - c. The total mass of reactants is always the same as the solid products produced.
  - d. The total mass of reactants is equal to the total mass of products.
32. In a chemical reaction, 64 g of zinc is reacted with excess oxygen to form 80 g of zinc oxide. How much oxygen is used in this reaction?
- a. 144 g.
  - b. 16 g.
  - c. 80 g.
  - d. 64 g.
33. The chemical reaction causes.....
- a. breaking the bonds between the products and forming new bonds between the reactants.
  - b. the formation of bonds between the products, then breaking the bonds between the reactants.
  - c. breaking the bonds between the molecules of reactants and forming new bonds between the molecules of the products.
  - d. the bonds between the products and the reactant are broken.
34. Which of the following equations showing the formation of carbon dioxide is correctly balanced?
- a.  $2\text{C} + \text{O}_2 \rightarrow \text{CO}_2$
  - b.  $\text{C} + \text{O}_2 \rightarrow \text{CO}_2$
  - c.  $\text{C} + \text{O}_2 \rightarrow \text{CO}$
  - d.  $\text{C} + \text{O} \rightarrow \text{CO}_2$

35. liquids transport through pores and the walls of cells from .....

- a. outside to inside.
- b. inside to outside
- c. low concentration to high concentration.
- d. high concentration to low concentration

36. Which of the following are types of fundamental forces?

- a. Constant forces.
- b. Gravitational forces.
- c. Friction forces.
- d. Up thrust forces.

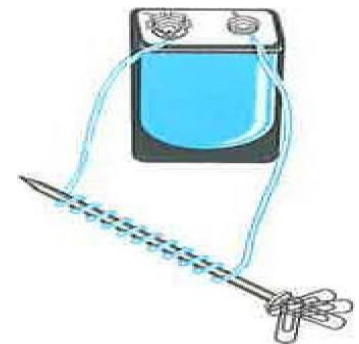
37. Direct combination reaction takes place between.....

- a. two nonmetals.
- b. a metal and a nonmetal.
- c. a compound with another.
- d. all of the previous answers.

38. The opposite figure shows the idea of working of a device:

1. what is the changes of energy in this device?

- a. Chemical to heat
- b. Electric to kinetic
- c. Electric to magnetic
- d. Magnetic to electric



39. What is the name of the device based on this idea of working ?

- a. Dynamo
- b. Generator
- c. Electro magnet
- d. Electric fan

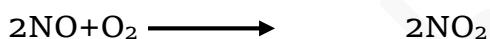
40. Which of the following is a unit of force?

- a. newton.
- b. kilogram.
- c. watt.
- d. joule.

41. When two cars move in the same direction with a velocity of 100 Km/h, the driver of the first car imagines the second car to be.....

- a. not moving
- b. moving forward
- c. moving backwards
- d. No correct answer

42. The chemical reaction equation below shows nitrogen monoxide reacting with oxygen:



Which of the following types of direct combustion reactions does this equation represent?

- a. A mixture with an element.
- b. A compound with another.
- b. An element with a compound.
- c. compound.

43. To form 54 gm of water, it is required to react 48 gm of oxygen with 6 gm of hydrogen, so 2 gm of hydrogen combines completely with..... gm of oxygen.

- a. 12
- b. 16
- c. 96
- d. 144

44. If the mass of an object is 2 kg and the Earth's gravitational acceleration is 10 m/sec<sup>2</sup>, the object's weight equals.....

- a. 0.2 newton.
- b. 20 kg.
- c. 2 newton.
- d. 20 newton.

45. The ratio between the mass of reactants in the chemical reaction to the mass of products is..... according to the law of conservation

of matter.

- a. less than
- b. more than
- c. equal
- d. no correct answer

46. If you have two objects (A) & (B), the weight of object (A) is double the weight of object (B) and the mass of object (B) equals 40 kg, so the weight of object (A) = ....., newton.

[knowing that the Earth's gravitational acceleration =  $10 \text{ m/sec}^2$ .]

- a 20
- b 40
- c. 80
- d. 60

47. The car brake performance is an application of .....

- a. attraction forces.
- b. centrifugal forces.
- c. friction forces.
- d. nuclear force.

48. The idea of how the electromagnet works is to change.....

- a. mechanical energy into electric energy.
- b. electric energy into magnetic energy.
- c. electric energy into mechanical energy.
- d. magnetic energy into mechanical energy.

49 When two cars move in the opposite direction with a velocity 80 km/h., the driver of the first car imagines that the second car moves with velocity

- a. zero
- b. 80
- c. 160
- d 100

50. When two cars move in the same direction with a velocity 80 km/h., the driver of the first car imagines that the second car moves with velocity
- a. zero                      b. 80                      c. 160                      d 100
51. All of the following are motions regularly repeated in equal periods of time except
- a. wave motion.                      b. circular motion.  
c. vibrating motion.                      d. transitional motion.
52. All of the following are properties of sound waves except
- a. it is mechanical waves.    b. it travels through free space.  
c. needs a medium to travel.  
d. it is produced due to vibration of medium particles.
53. The movement of electrons around the nucleus is considered.....motion.
- a. vibrating                      b. circular  
c. transitional                      d. wave
54. Electromagnetic forces affect on the operation of the following except for.....
- a. dynamo (electric generator).                      b. electric motor.  
c. car internal combustion engine.                      d. electromagnet.
55. The object's weight changes by changing its .....
- a. volume.                      b. velocity.  
c. position on Earth's surface.                      d. (b) and (c) together.

**Model answer**

1. c	2. a	3. d	4. d	5. b	6. c	7.
8. c	9. c	10. b	11. c	12. a	13. b	14. c
15. a	16. c	17. d	18. b	19. b	20. b	21. d
22. c	23. a	24. a	25. b	26. d	27. b	28. b
29. b	30. c	31. d	32. b	33. c	34. b	35. c
36. b	37. d	38. c	39. c	40. a	41. a	42. b
43. b	44. d	45. c	46. c	47. c	48. b	49. c
50. a	51. d	52. b	53. b	54. c	55. c	

1- The gases that cause respiratory system malfunction are .....

- a. carbon oxides
- b. sulphur oxides
- c. nitrogen oxides
- d. (b), (c)

2- Oxides which affect the nervous system and the eye.

- a. Sulphur oxides
- b. Nitrogen oxides
- c. carbon oxides
- d. no correct answer

3- What is the name of the chemical reaction in which elements and compounds join together to create a single product?

- a. Decomposition reaction
- b. Direct combination reaction
- c. Substitution reaction
- d. Neutralization reaction

4- The chemical reaction equation below shows nitrogen monoxide reacting with oxygen:



Which of the following types of direct combustion reactions does this equation represent?

- a. A mixture with an element
- b. An element with a compound
- c. An element with another element
- d. A compound with another compound

5- The car brake performance is an application of .....

- a. attraction forces
- b. friction forces
- c. centrifugal forces
- d. nuclear force

6- ..... is/are example/s of forces inside living systems.

- a. Pulse inside blood vessels
- b. Inertia
- c. Brakes
- d. All the pervious

7- Static objects resist the change of its ..... from rest to motion.

- a. mass
- b. density
- c. state
- d. All the pervious



8- Earth's gravity acceleration changes from a place to another on the Earth's surface because of the .....

- a. object's mass
- b. Earth's mass
- c. the distance from the earth's center
- d. varied temperature

9- The electromagnet is used in making the ..... set.

- a. calculator
- b. microscope
- c. electric bell
- d. night vision

10- Iron filings are attracted to an iron bar when the electric current flows, due to the effect of .....

- a. gravity force
- b. electricity force
- c. electromagnetic force
- d. nuclear force

11- The attraction force between an object and the Earth is equal to the .....

- a. electromagnet
- b. weight
- c. weak nuclear
- d. strong nuclear

12- An object's weight on the Earth's surface is related to ..... force.

- a. electromagnet
- b. weak nuclear
- c. Earth's attraction
- d. strong nuclear

13- All of the following are examples of the universal forces in nature except for .....

- a. thunder
- b. lightning
- c. wind motion
- d. changing direction of the ball

14- All of the following are electromagnetic waves except for the .....

- a. thermal rays (infra-red)
- b. visible light
- c. sound waves
- d. ultraviolet rays

- 15- When two cars move in the same direction with a velocity of 100 Km/h, the driver of the first car imagines the second car to be .....
- a. not moving
  - b. moving backwards
  - c. moving forward
  - d. No correct answer
- 16- A force is an effect that .....
- a. Changes the phase of an object's motion only.
  - b. Never changes the phase of the object's motion.
  - c. Changes both the object's motion and its direction.
  - d. Changes the phase of the object's direction.
- 17- ..... is an example of a pneumatic musical instrument.
- a. Violin
  - b. Guitar
  - c. Lute
  - d. Reed pipe
- 18- What chemical is produced when magnesium reacts with oxygen?
- a. Oxygen magnesium
  - b. Magnesium oxide
  - c. Magnesium oxygen
  - d. Oxide magnesium
- 19- Which of the following speeds is closest to the speed of light waves in a vacuum?
- a. Three hundred thousand meters per second
  - b. Three thousand meters per second
  - c. Three hundred million meters per second
  - d. Three million meters per second
- 20- Which of the following chemical equations shows the reaction between ammonia and hydrogen chloride to form ammonium chloride?
- a.  $\text{NH}_3 + \text{HCl} \longrightarrow \text{NH}_4\text{Cl}$
  - b.  $\text{NH}_4\text{Cl} + \text{H}_2\text{O} \longrightarrow \text{HCl} + \text{NH}_4\text{OH}$
  - c.  $\text{HCl} + \text{NaCl} \longrightarrow \text{NaOH} + \text{H}_2\text{O}$
  - d.  $\text{N}_2 + 3\text{H}_2 \longrightarrow 2 \text{NH}_3$

21- Which of the following is a unit of force?

- a. The newton
- b. The kilogram
- c. The watt
- d. The joule

22- If an object is not moving, it.....start to move unless a force acts on it.

- a. will
- b. will not
- c. (a) & (b)
- d. No correct answer

23- If an object is moving, it will not change..... or..... unless a force acts on it.

- a. speed, direction
- b. position, direction
- c. position, inertia
- d. no correct answer

24- An object with a mass of 20 kg falls toward Earth. What is the acceleration of the object if the only force acting on it is gravity?

- a.  $7.8 \text{ m/s}^2$
- b.  $8 \text{ m/s}^2$
- c.  $9.8 \text{ m/s}^2$
- d. No correct answer

25- A person stands on the north pole of Earth and a second person stands on the equator. The directions that the gravitational forces on the two people act in are.....

- a. the same as each other
- b. opposite to each other
- c. at 90 degrees to each other
- d. no correct answer

26- The weight of an object is the gravitational.....that acts on it.

- a. force
- b. mass
- c. energy
- d. no correct answer

27- The electric motor works on changing..... energy to.....energy.

- a. Mechanical; electric
- b. Electric; heat
- c. Electric; mechanical
- d. No correct answer

28- The electric generator works on changing.....energy to .....energy.

- a. Mechanical; electric
- b. Electric; heat
- c. Electric; mechanical
- d. No correct answer

29- Objects weight.....

- a. The amount of Earth's attraction to the object.
- b. The point at the center of an object where the force of gravity affects the object.
- c. (a) & (b)
- d. No correct answer

30- Find the mass of an object if its weight = 60 N, knowing that the earth's gravity acceleration is  $9.8\text{m/s}^2$

- a. 12.6 Kg
- b. 6.12 Kg
- c. 6.12 N
- d. No correct answer

31- When the electric current passes through a wire near a magnetic needle it deflects.

- a. Due to the gravity.
- b. Due to the magnetic effect of the electric current
- c. Due to the attraction force
- d. No correct answer

32- Carbon monoxide has a dangerous impact on human being and it may cause.....

- a. Building corrosion
- b. Bombing
- c. Headache and fainting
- d. No correct answer

33- Which of the following statements about nuclear forces is correct?

- a. The strong nuclear force is a different type of force from the weak nuclear force, but both are types of fundamental forces.
- b. The strong nuclear force is a different type of force from the weak nuclear force, and only the strong nuclear force is a type of fundamental force.

c. The strong nuclear force is the same type of force as the weak nuclear force, just stronger.

d. No correct answer.

34- Which of the following are types of fundamental forces?

a. Opposing forces

c. Up thrust forces

b. Constant forces

d. Magnetic forces

35- Which of the following are types of force responsible for radioactive decay of atomic nuclei?

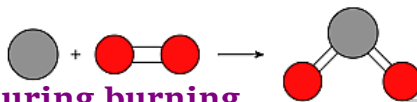
a. Weak nuclear forces

c. Electrical forces

b. Strong nuclear force

d. Magnetic forces

36- The particles in the diagram show the reaction between carbon and oxygen to form carbon dioxide. Heat is required for this reaction to take place. What does the heat do?



a. It turns the carbon into soot during burning.

b. It sticks the carbon atom to the oxygen atoms.

c. It forms the bonds between the carbon and oxygen atoms.

d. It breaks the double covalent bond in the oxygen molecule.

37- Which of the following are types of fundamental forces?

a. Constant forces

c. Gravitational forces

b. Friction forces

d. Upthrust forces

38- Which of the following is a unit of weight?

a. The kilogram

b. The newton

c. (a) and (b)

d. No correct answer

39- Which of the following is a unit of mass?

a. The kilogram

c. (a) and (b)

b. The newton

d. No correct answer

40- What does the triangle above the arrow in a chemical equation mean?



- a. Three substances present
- b. Heat required
- c. Diluted substances
- d. Concentrated substances

41- Which of the following statements best describes the way in which mass is conserved during chemical reactions?

- a. The total mass of reactants is equal to the total mass of products plus the mass of oxygen.
- b. The total mass of reactants is greater than the total mass of products.
- c. The total mass of reactants is always the same as the solid products produced.
- d. The total mass of reactants is equal to the total mass of products.

42- A teacher places a cup of coffee onto an electronic balance at the front of the science laboratory. The teacher then adds three large teaspoons of sugar to the coffee. The volume of the coffee does not appear to increase. What happens to the mass displayed on the front of the balance?

- a. The mass on the balance decreases.
- b. The mass on the balance stays the same.
- c. The mass on the balance increases.
- d. No correct answer.

43- In a chemical reaction, 64 g of zinc is reacted with excess oxygen to form 80 g of zinc oxide. How much oxygen is used in this reaction?

- a. 144 g
- b. 80 g
- c. 16 g
- d. 64 g

44- The greater the mass of an object, the..... the weight of the object.

- a. less
- b. greater
- c. smallest
- d. no correct answer

45- The diagram shows two objects at different positions around Earth. The force of gravity acts on the black object in the direction of the black arrow. Which color arrow correctly shows the direction in which the force of gravity acts on the green object?

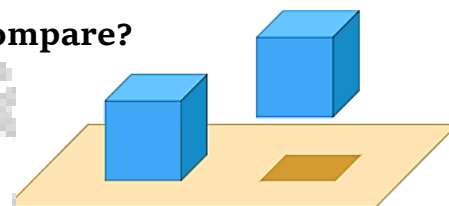


- a. Red
- b. Blue
- c. (a) and (b)
- d. No correct answer

46- A process in which breaking of bonds between reactants' molecules and forming of new bonds between products' molecules occurs.

- a. Chemical reaction
- b. Chemical equation
- c. Law of constant ratio.
- d. No correct answer.

47- Two boxes have the same mass. One box falls toward the ground from a point near the ground. The other box is at rest on the ground. In which of the following ways do the weights of the boxes compare?

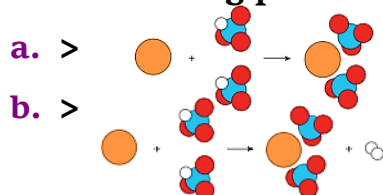


- a. Both boxes have the same weight.
- b. The falling box has less weight.
- c. The falling box has greater weight.
- d. No correct answer.

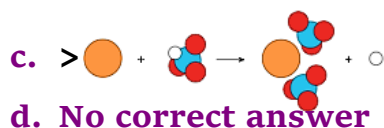
48- Which of the following equations showing the formation of carbon dioxide is correctly balanced?.

- a.  $2C + O_2 \longrightarrow CO_2$
- b.  $C + O_2 \longrightarrow CO_2$
- c.  $C + O_2 \longrightarrow CO$
- d.  $C + O \longrightarrow CO_2$

49- Which of the following particle diagrams shows the law of conservation of mass being preserved?







50- The chemical reaction causes . . . . .

- a. breaking the bonds between the products and forming new bonds between the reactants.
- b. the formation of bonds between the products ,then breaking the bonds between the reactants.
- c. breaking the bonds between the molecules of reactants and forming new bonds between the molecules of the products.
- d. breaking the bonds between the products and the reactants.

51- The sum of reactants masses in any chemical reaction is . . . . . the sum of products masses.

- a. doubled
- b. more than
- c. equal to
- d. less than

52- If the molecule of carbon dioxide consists of one atom of carbon and two atoms of oxygen, knowing that the mass of carbon is 12 and that of oxygen is 16, so the mass of two molecules of carbon dioxide equals . . . . . gm.

- a. 22
- b. 44
- c. 88
- d. 33

53- Direct combination reaction takes place between . . . . .

- a. two nonmetals.
- b. a metal and a nonmetal.
- c. a compound with another.
- d. all of the previous answers.

54- Ammonia combines with conc. HCl producing . . . . . of ammonium chloride.



- a. white ppt
- b. brown clouds
- c. white clouds
- d. brown ppt

55- Chemical reactions are used in .....

- a. medicines industry.
- b. fertilizers industry.
- c. food industry.
- d. all of the previous answers.

56- Increasing the ratio of ..... gas in the atmosphere leads to increasing the air temperature.

- a. carbon monoxide
- b. carbon dioxide
- c. nitric oxide
- d. sulphur dioxide

57- The gases that cause building corrosion are .....

- a. nitrogen oxides.
- b. carbon oxides.
- c. sulphur oxides.
- d. both (b) and (c).

58- The gases that affect the nervous system and the eye are .....

- a. nitrogen oxides.
- b. carbon oxides.
- c. sulphur oxides.
- d. (a) and (b).

59- All of these gases are acidic gases except .....

- a. sulphur dioxide.
- b. sulphur trioxide.
- c. nitrogen oxides.

d. ammonia.

60- ..... oxides are resulted during the time of lightning.

- a. Carbon
- b. Sulphur
- c. Nitrogen
- d. (a) and (b)

61- The substances resulted from burning of coal and cellulose fibres cause .

.....

- a. head-ache.
- b. fainting.
- c. lung cancer.
- d. (a) , (b) and (c) are correct.

62- ..... is the distance at which an object moves away from its original position at any moment in a certain direction.

- a. Velocity
- b. Speed
- c. Displacement
- d. Acceleration

63- Which of the following represents a static object ?

- a. Displacement occurred by the object every second is not equal.
- b. Displacement occurred by the object every second is equal.
- c. Displacement value of the object is fixed.
- d. No correct answer.

64- The change in an object's position or direction as the time passes relative to a frame of reference is called ..... motion.

- a. periodic
- b. vibrating
- c. relative
- d. circular

65- If you are in a moving train, you imagine that cars moving in the same direction on the road at smaller speed . . . . .

- a. stop.
- b. move forward.
- c. move backward.
- d. move with a high speed.

66- The motion of the following objects are transitional motion except the motion of . . . . .

- a. train.
- b. simple pendulum.
- c. car.
- d. bicycle.

67- In the periodic motion, the . . . . .

- a. pathway is straight.
- b. motion is regularly repeated.
- c. time is regularly repeated.
- d. speed is regularly changed.

68- All of the following are periodic motions except the . . . . . motion.

- a. fan
- b. pendulum
- c. train
- d. sunflower

69- All of the following are motions regularly repeated in equal periods of time except . . . . .

- a. wave motion.
- b. circular motion.
- c. vibrating motion.
- d. transitional motion.

70- All of the following are properties of sound waves except . . . . .

- a. it is mechanical waves.
- b. it is produced due to vibration of medium particles.
- c. it needs a medium to travel.
- d. it travels through free space.

71- . . . . . waves is an example of mechanical waves.

- a. Water
- b. Light
- c. Radio
- d. Ultraviolet

72- . . . . . are used in examining and curing sets for human body.

- a. Ultrasonic waves
- b. Gamma rays
- c. Infrared rays
- d. X-rays

73- Sound waves are used in all the following except . . . . .

- a. examining and curing sets.
- b. making remote sets.
- c. musical instruments.
- d. amplifiers.

74- . . . . . are used in night vision apparatus.

- a. Infrared rays
- b. Ultraviolet rays
- c. Gamma rays
- d. X-rays

75- X-rays are used in . . . . .

- a. treatment and discovering some swellings.
- b. photographing bones to detect bone fractures.

- c. sterilizing the sets of surgical operation rooms.
- d. remote sensing instruments to photograph the Earth's surface.

76- ..... are used in medical purposes as the treatment and discovering some swellings.

- a. X-rays
- b. Ultraviolet rays
- c. Infrared rays
- d. Gamma rays

77- ..... is among the applications of ultraviolet rays.

- a. Photographing bones
- b. Night vision apparatus
- c. Sterilizing of the sets of surgical operation rooms
- d. Discovering of some swellings

78- Visible light is used in all of the following applications except in .....

- a. night vision apparatus.
- b. television cameras.
- c. photographic cameras.
- d. data shows.

79- All of the following are accompanied forces to motion except .....

- a. friction force.
- b. gravitational force.
- c. force of inertia.
- d. forces inside living systems.

80- When a moving bus stops suddenly, the passengers and the driver .....

.....

- a. rush backward.
- b. rush forward.
- c. turn upside down.
- d. tend to lean.

81- When the horse is tripped, the horse rider is suddenly rushed forward, this is related to the force of .....

- a. inertia.
- b. centrifugal.
- c. attraction.
- d. horse pushing.

82- Passengers are rushed back when a car starts moving suddenly, this is related to .....

- a. centrifugal force.
- b. force of attraction.
- c. force of inertia.
- d. friction force.

83-..... is a technological application on inertia forces.

- a. Car tyres
- b. Contraction and relaxation of muscles
- c. Safety belts
- d. No correct answer

84- The car brake performance is an application of .....

- a. attraction forces.
- b. friction forces.
- c. electromagnetic forces.
- d. forces of inertia.

85- The following forces are applications of friction except .....

- a. walking on foot on a road.
- b. starting motion of cars.
- c. the work of electric generator (dynamo).
- d. stopping the car using the brakes.

86- Friction causes a great loss of mechanical energy because this energy is changed into ..... energy.

- a. light
- b. electric
- c. heat
- d. magnetic

87- The idea of machine lubrication depends on the decrease in . . . . .

- a. their weights.
- b. forces of inertia.
- c. friction forces.
- d. forces of gravity.

88- . . . . . is among the forces inside living systems.

- a. The contraction and relaxation of muscles
- b. Force of inertia
- c. Electrostatic force
- d. Friction force

89- Liquids transport through pores and the walls of cells from . . . . .

- a. outside to inside.
- b. inside to outside.
- c. low concentration to high concentration.
- d. high concentration to low concentration.

90- A force is an effect that . . . . .

- a. always changes the phase of an object's motion only.
- b. never changes the phase of an object's motion.
- c. always changes both object's phase and direction.
- d. may change the phase of an object motion only.

91- Universal forces in nature are . . . . .

- a. attraction forces.
- b. electromagnetic forces.
- c. nuclear forces.
- d. all of the previous forces.

92- The attraction force between an object and the Earth is equal to the . . . .

- a. object's mass.
- b. object's weight.
- c. Earth's gravity acceleration.
- d. Centrifugal force.

93- An object's weight on the Earth's surface is related to . . . . . forces.

- a. electromagnetic
- b. attraction
- c. weak nuclear
- d. strong nuclear

94- Earth's gravity acceleration is changed from a place to another on Earth's surface because of . . . . .

- a. objects' masses.
- b. Earth's mass.
- c. the distance from the Earth's centre.
- d. various temperatures.

95- The multiplying of object's mass by Earth's gravity acceleration equals . . . . .

- a. object's volume
- b. object's mass
- c. object's weight
- d. no correct answer.

96- The bar used in the electromagnet is made up of . . . . .

- a. isolated copper.
- b. steel iron.
- c. wrought iron.
- d. aluminium.

97- The idea of how the electromagnet works is to change . . . .

- a. mechanical energy into electric energy.



- b. electric energy into magnetic energy.
- c. electric energy into mechanical energy.
- d. magnetic energy into mechanical energy.

98- Electromagnet is used in making the . . . . . set.

- a. calculator
- b. electric bell
- c. microscope
- d. night vision

99- Electromagnetic forces affect the performance of the following except for

- ...
- a. dynamo (electric generator).
  - b. electric motor.
  - c. car internal combustion engine.
  - d. electromagnet.

100- The . . . . . changes the mechanical energy into an electric energy.

- a. electromagnet
- b. dynamo
- c. electric motor
- d. no correct answer

101- The electric motor changes the . . . .

- a. mechanical energy into an electric energy.
- b. electric energy into a magnetic energy.
- c. electric energy into a mechanical energy.
- d. magnetic energy into a mechanical energy.

102- Electric motor is used in the manufacture of . . . . .

- a. radio.
- b. electric bell.
- c. blinder (mixer).

d. watch.

103- Weak nuclear forces are used in . . . . .

- a. producing electricity.
- b. scientific researches.
- c. military purposes.
- d. all the previous uses.

104- Strong nuclear forces are used in . . . . .

- a. medicine.
- b. industry.
- c. scientific researches.
- d. military purposes.

105-



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## Answers

1	B
2	B
3	B
4	B
5	B
6	A
7	C
8	C
9	C
10	C
11	B
12	C
13	D
14	C
15	A
16	C
17	D
18	B
19	C
20	A
21	A
22	B
23	A
24	C
25	C
26	A
27	C
28	A
29	A
30	B
31	B
32	C
33	A
34	D
35	A
36	D

37	C
38	B
39	A
40	B
41	D
42	C
43	C
44	B
45	B
46	A
47	A
48	B
49	B
50	C
51	C
52	C
53	D
54	C
55	D
56	B
57	C
58	A
59	D
60	C
61	C
62	C
63	C
64	C
65	C
66	B
67	B
68	C
69	D
70	D
71	A
72	A
73	B
74	a
75	B
76	D
77	C

78	A
79	B
80	B
81	A
82	C
83	C
84	B
85	C
86	C
88	C
89	A
90	C
91	D
92	B
93	B
94	C
95	C
96	C
97	B
98	B
99	C
100	B
101	c
102	C
103	B
104	D



# April Revision

## ★ Choose the right answer:

**Mr. Ahmed ElBasha**

1. If you are in a moving train, you imagine that the cars moving in the same direction on the road with same speed .....

- a. stop.
- b. move forward.
- c. move backward.
- d. move with a high speed.

2. All of the following are periodic motions except the .....

- a. fan motion.
- b. pendulum motion.
- c. train motion.
- d. sunflower motion.

3. From the examples of forces inside living systems is/are .....

- a. pulse inside blood vessels.
- b. inertia.
- c. brakes.

4. Increasing the ratio of .....gas in the atmosphere leads to increasing the air temperature.

- a. carbon monoxide
- b. carbon dioxide
- c. sulphur dioxide

5. Car brakes are one of the applications of .....

- a. gravitational force.
- b. friction force.
- c. nuclear force.

6. .... are poisonous and affect the nervous system and the eye.

- a. Cellulose fibres
- b. Sulphur oxides
- c. Carbon oxides
- d. Nitrogen oxides

7. The measuring unit of force is .....

- a. kg.
- b. newton.
- c.  $m/s^2$
- d. m/s.

8. .... oxides are resulted during the time of lightning.

- a. Carbon
- b. Sulphur
- c. Nitrogen
- d. Basic

9. .... are used in night vision apparatus.

- a. Infrared rays
- b. Ultraviolet rays
- c. X-rays
- d. Gamma rays

10. All of the following are electromagnetic waves except the .....

- a. sound waves.      b. ultraviolet waves.      c. infrared rays.      d. visible light

11. When a car is at a rest starts moving suddenly, the passengers

- a. rush backward.      b. turn upside down.      c. rush forward.      d. keep steady.

12. The mass of an object, its weight is 98 newton is . ....

(knowing that the Earth's gravitational acceleration=  $9.8 \text{ m/s}^2$ )

- a. 10 kg.      b. 980 kg.      c. 0.98 kg.

13. .... are used in examining bones.

- a. Ultrasonic waves      b. Gamma rays      c. Infrared rays      d. X-rays

14. .... is a mechanical wave.

- a. X-ray      b. Light      c. Sound      d. Gamma ray

15. Lubricating and oiling mechanical machines depend on decreasing the effect of .... force.

- a. inertia      b. friction      c. attraction      d. electromagnetic

16. .... changes the mechanical energy into electric energy.

- a. Dynamo      b. Electromagnet      c. Motor      d. Electric fan

17. The measuring unit of the speed is .....

- a. m/sec.      b. joule.      c. kg.      d. newton.

18. If the weight of a body is 400 N, knowing that the Earth's gravitational acceleration is  $10 \text{ m/sec}^2$ , its mass equals .....

- a. 40 kg.      b. 4 kg.      c. 4000 kg.      d. 80 kg.

19. Ammonia combines with HCl producing .... of ammonium chloride.

- a. white powder      b. white ppt.      c. white fumes      d. white solution

20. .... rays are used in remote sensing instruments.

- a. Ultraviolet      b. Infrared      c. Gamma      d. Visible light

21. The chemical formula of hydrochloric acid is .....

- a.  $\text{H}_2\text{O}$       b. HCl      c.  $\text{H}_2\text{SO}_4$       d.  $\text{HNO}_3$

**22. The object's weight on Earth's surface is related to .....**

- a. electromagnetic force.
- b. gravitational force.
- c. nuclear force.
- d. friction force.

**23. From circular motion is .....**

- a. pendulum motion.
- b. movement of Moon around Earth.
- c. water wave motion.
- d. bicycle motion.

**24. All of the following forces and operations are applications on friction except .....**

- a. walking on ground.
- b. moving cars.
- c. the work of dynamo.
- d. stopping cars.

**25. Electromagnet is used in making .....**

- a. electric winch.
- b. calculator.
- c. microscope.

**26. The substances resulted from burning of coal and cellulose fibers cause .....**

- a. headache.
- b. fainting.
- c. lung cancer.
- d. (a), (b) and (c).

**27. The bar used in electromagnet is made of .....**

- a. isolated copper.
- b. steel iron.
- c. wrought iron.
- d. aluminium.

**28. Earth's gravitational acceleration is changed from a place to another on Earth's surface because of .....**

- a. object's mass.
- b. Earth's mass.
- c. the distance from the Earth's centre.

**29. Increasing ratio of ..... gas, causing increasing temperature of atmosphere.**

- a. CO
- b. CO<sub>2</sub>
- c. SO<sub>2</sub>
- d. SO<sub>3</sub>

**30. From accompanied force due to the motion are .....**

- a. force of inertia
- b. friction force
- c. all the previous

**31. From application on force inertia .....**

- a. safety belts
- b. car's break
- c. car tires

**32. The objects fall down by effect of .....**

- a. electromagnet force
- b. gravitational force
- c. nuclear force
- d. magnetic force

**33. Mass x Earth's gravity acceleration equal .....**

- a. volume
- b. weight
- c. density



**34. when two cars move in same direction with velocity 80 km/h, the driver of the first car imagines that the second car moves with velocity ..... km/h**

- a. zero                                      b. 80                                      c. 160                                      d. No correct answer

**35. The gases that cause buildings corrosion is/are .....**

- a. nitric oxide.                                      b. carbon dioxide.                                      c. sulphur oxides.                                      d. nitrogen oxides.

**36. All the following are electromagnetic waves except for the .....**

- a. thermal rays.                                      b. visible light.                                      c. sound waves.                                      d. ultraviolet rays.

**37. When the horse is tripped, the rider is suddenly pushed forward, this is related to the force of .....**

- a. inertia.    b. centrifugal force  
c. attraction.    d. the horse pushing.

**38. Burning of cigarettes cause ..... disease.**

- a. Lung cancer                                      b. Headache                                      c. dizziness                                      d. eye cataract

**39. Increasing ratio of ..... gas, causing increasing temperature of atmosphere.**

- a. CO    b. CO<sub>2</sub>    c. SO<sub>2</sub>    d. SO<sub>3</sub>

**40. From forces enable living organisms to do biological operation .....**

- a. pulse    b. Friction    c. inertia force

**41. From accompanied force due to the motion are .....**

- a. force of inertia                                      b. friction force                                      c. all the previous

**42. The parts of machines must lubricating and oiling to .....**

- a. increase friction    b. increase temperature  
c. decrease friction    d. reduce inertia

**43. The isolated coil in electromagnet made up from .....**

- a. iron    b. magnet    c. copper

**44. The objects fall down by effect of .....**

- a. electromagnet force                                      b. gravitational force                                      c. nuclear force                                      d. magnetic force

**45. The idea of mechanism of lubricant depends on decreasing of ..... force.**

- a. friction    b. inertia    c. gravity    d. nuclear

**46. All the following are periodic motion except ..... motion.**

- a. fan                                      b. pendulum                                      c. train                                      d. water wave

**47. The force is an affect that .....**

- a. always change the phase of an object motion'.  
b. never change the phase of an object motion.  
c. always changes an object position and direction.  
d. may change the phase of an object motion.

**48. An object weight on Earth's surface is related to .....**

- a. electromagnetic.                                      b. attraction.  
c. weak nuclear.                                      d. strong nuclear.

**49. The car brake performance is an application of .....**

- a. attraction forces.                                      b. friction forces.  
c. centrifugal forces.                                      d. forces of inertia.

**50. From the examples of forces inside the living systems ::**

- a. pulse inside blood vessels.                                      b. inertia.  
c. brakes.                                      d. all the previous.

**51. Visible light is used in all the following applications except .....**

- a. night vision apparatus.                                      b. television cameras.  
c. photographic cameras.                                      d. data shows.

**52. The measuring unit of force is .....**

- a. kg.                                      b. newton.                                      c.  $m/s^2$                                       d. m/s.

**53. .... are used in night vision apparatus.**

- a. Infrared rays                                      b. Ultraviolet rays                                      c. X-rays                                      d. Gamma rays

**54. Electromagnet is used in making the .....**

- a. cooking food.                                      b. electric bell.                                      c. microscope.                                      d. data show.

**55. The magnesium ribbon changes into white powder of ..... when it bums in air.**

- a. magnesium nitrite                                      b. magnesium oxide  
c. magnesium hydroxide                                      d. magnesium dioxide

**56. Electromagnet is used in making .....**

- a. electric winch.                      b. calculator.                      c. microscope.

**57. .... is the scientist who discovered the Earth's gravitational.**

- a. Planck                      b. Newton                      c. Archimedes                      d. Coulomb

**58. The work done to lift an object upwards increases by increasing .....**

- a. object's volume.                      b. object's mass.                      c. object's density.                      d. no correct answer.

**59. Friction causes a great loss of mechanical energy because this energy is changed into ..... energy.**

- a. light                      b. electric                      c. heat                      d. magnetic

**60. An object's weight on the Earth's surface is related to the ..... forces.**

- a. electromagnetic                      b. gravitational  
c. weak nuclear                      d. strong nuclear

**61. Earth's gravitational acceleration is changed from a place to another on Earth's surface because of the .....**

- a. objects' masses.                      b. Earth's mass .  
c. the distance from the Earth's centre.                      d. temperatures.

**62. The idea of how the electromagnet works is to change .....**

- a. mechanical energy into electric energy.  
b. electric energy into magnetic energy.  
c. electric energy into mechanical energy.  
d. magnetic energy into mechanical energy.

**63. The electromagnet is used in making the .....**

- a. calculator.                      b. electric bell.  
c. microscope.                      d. night vision system.

**64. The electric motor changes the .....**

- a. mechanical energy into an electric energy.  
b. electric energy into a magnetic energy.  
c. electric energy into a mechanical energy.  
d. magnetic energy into a mechanical energy.

**65. The nuclear radiations used in medicine are produced from .....**

- a. gravitational forces.
- b. electromagnetic forces.
- c. weak nuclear forces.
- d. strong nuclear forces.

**66. Infrared rays are used in cooking food because they have ..... effect property.**

- a. light
- b. magnetic
- c. heat
- d. electric

**67. Weak nuclear forces are used in .....**

- a. producing electricity.
- b. scientific researches.
- c. military purposes.
- d. all the previous uses .

**68. Strong nuclear forces are used in .....**

- a. medicine.
- b. industry.
- c. scientific researches .
- d. military purposes.

**69. X-rays are used in .....**

- a. treatment and discovering some swellings.
- b. photographing bones to detect bone fractures.
- c. sterilizing the sets of surgical operation rooms.
- d. remote sensing instruments to photograph the Earth's surface.

**70. .... are used in medical purposes as the treatment and discovering some swellings.**

- a. X-rays
- b. Ultraviolet rays
- c. Infrared rays
- d. Gamma rays

**71. .... is among the applications of ultraviolet rays.**

- a. Photographing bones
- b. Night vision apparatus
- c. Sterilizing of the sets of surgical operation rooms
- d. Discovering of some swellings

**Model answer**

1. A	11.A	21.B	31.A	41.C	51.A	61.C	71.C
2. C	12.A	22.B	32.B	42.C	52.B	62.B	
3. A	13.D	23.B	33.B	43.C	53.A	63.B	
4. B	14.C	24.C	34.A	44.B	54.B	64.C	
5. B	15.B	25.A	35.C	45.A	55.B	65.C	
6. D	16.A	26.C	36.C	46.C	56.A	66.C	
7. B	17.A	27.C	37.A	47.D	57.B	67.B	
8. C	18.A	28.C	38.A	48.B	58.B	68.D	
9. A	19.C	29.B	39.B	49.B	59.C	69.B	
10.A	20.B	30.C	40.A	50.A	60.B	70.D	

**Science**  
**First Preparatory**  
**Second Term**

**Unit ONE**

**Lesson THREE**

**QUESTIONS**

## **1 – Write the definition of each of the following :**

---

- 1 – Reactants : .....
- 2 – Products : .....
- 3 – Chemical reaction : .....
- 4 – Chemical equation : .....
- 5 – Balanced chemical equation : .....
- 6 – Law of conservation of matter (mass) : .....
- 7 – Law of constant ratios : .....
- 8 – Direct combination reactions : .....

## **2 – Write the scientific term of each of the following :**

---

- 1 – The substances that take part (share) in the chemical reaction
- 2 – The substances that are formed at the end of the reactions
- 3 – It is the breaking of the existing bonds between the atoms of the molecules in the reactants and forming of new bonds between the atoms of the molecules in the products
- 4 – It is a set of symbols and chemical formulae representing the reactants, products and the conditions of the reaction as well
- 5 – It is an equation in which the number of atoms entering a reaction equals the number of atoms resulting from this reaction



- 6 - In any chemical reaction, the sum of reactant masses equals the sum of products masses
- 7 - The chemical compound is produced from combination of its elements by constant weight ratios
- 8 - They are reactions which involve a combination of two or more substances to form a new compound
- 9 - The reaction that is considered from the reactions that produce a lot of pollutant gases
- 10 - The gas that causes headache, fainting, severe stomachache and death
- 11 - The gas that causes greenhouse effect
- 12 - Oxides affect the respiratory system and cause building corrosion
- 13 - Oxides that are formed during lightning  
Oxides (poisonous gases) that affect the nervous system and the eye

### 3 - Complete the following statements :

- 1 - The chemical reaction is the.....of the **existing** bonds between the atoms of the molecules in the **reactants** and.....**new** bonds between the atoms of the molecules in the **products**
- 2 - The chemical reaction is the process in which bonds **existing** in the **reactants** are.....to form **new** bonds in the.....
- 3 - In the reaction :  $2\text{Mg} + \text{O}_2 \xrightarrow{\Delta}$  .....
  - a. The.....**bond** in an oxygen molecule is **broken** to give.....
  - b. The magnesium **atom** combines with.....**atom** to form.....**molecule**
- 4 - On burning a **magnesium** ribbon in **air**, a.....**powder** of.....is formed
- 5 - On burning a **magnesium ribbon** in **air**, its mass (weight).....
- 6 - The **chemical equation** is a set of.....and.....expressing the reactants and .....molecules in the chemical reaction



- 7 - To form 2 **molecules** of **water**,.....**molecule(s)** of **hydrogen** reacts with.....**molecule(s)** of **oxygen**
- 8 - The chemical equation should be.....such the total mass of the reactants entering a reaction.....the total mass of the products resulting from this reaction
- 9 - In any chemical reaction, the **sum** of **reactant masses** should be.....the **sum** of **products masses** according to the **law** of **conservation** of **matter**
- 10 - If 48 gm of **magnesium** reacts with 32 gm of **oxygen**, they produce.....gm. of.....
- 11 - A compound is produced from a chemical combination of atoms of two elements or more by constant weight proportions and this known as the law of.....
- 12 - Combination of carbon with oxygen gives.....gas and this reaction is considered from.....reactions
- 13 - When carbon (fuel) is burned in air, it gives.....
- 14 - When a glass rod wet with conc. hydrochloric acid is put at the mouth of a test tube containing ammonia solution,.....clouds of.....are formed
- 15 - Chemical reactions are used in many industries such as manufacture of.....and.....
- 16 - .....reaction is considered from the reactions that produce a lot of pollutant gases
- 17 - Burning of cellulose fibers cause.....and.....
- 18 - .....and.....are among products of fuel burning
- 19 - Carbon monoxide is a dangerous gas that causes.....and.....
- 20 - Increasing the ratio of.....gas in air leads to increasing air temperature
- 21 - Carbon dioxide acts as.....as it permits the penetration of.....rays to the Earth and never let them return back
- 22 - The combination of **oxygen** gas with.....**compound** produces carbon dioxide gas with is responsible for.....**phenomenon**
- 23 - Sulphur oxides as such as.....and.....are.....gases which cause.....and.....
- 24 - .....oxides are formed during lightning and they are from poisonous.....gases which affect.....and.....

25 - .....oxides affect the **nervous** system, while.....oxides cause **respiratory** system malfunction

#### **4 - Give reason for each of the following :**

---

1 - A white powder is formed when a magnesium ribbon is burned in air?

The mass of magnesium increases when it is burned?.....

2 - A chemical equation should be balanced?.....

3 - White clouds are formed when ammonia gas reacts with conc.hydrochloric acid?.....

4 - Chemical reactions play an important role in our life?.....

5 - Burning of coal and cellulose fibers has bad effects?.....

6 - The spread of cancer tumors increases in the countries that use coal as fuel?.....

7 - Smoking is very harmful to health?.....

8 - Burning of fuel is among the reactions that pollute the environment?.....

9 - Carbon monoxide is a dangerous gas?.....

10 -  $\text{CO}_2$  gas acts as a greenhouse effect?.....

11 - Sulphur oxides (Sulphur dioxide and Sulphur trioxide) are very dangerous?.....

12 - Sulphur oxides cause respiratory sys. malfunction and building corrosion?.....

13 – Erosion (corrosion) the front of houses in the industrial areas?

Country prevents the passage of cars in the archaeological areas?.....

14 – Nitrogen oxides (Nitric oxide and Nitrogen dioxide) are very dangerous?.....

15 – Nitrogen oxides affect the nervous system and the eye?.....

16 – Lightening causes environmental pollution (risk to human health)?.....

17 – The use of chemical reactions is considered a double-edged weapon?

Chemical reactions have useful and harmful effects?.....

## **5 – What happens when :**

1 – Burning a magnesium ribbon in air ?.....

2 – Approaching a wet rod with hydrochloric acid to ammonia gas ?.....

3 – Burning of coal and cellulose fibers ?.....

4 – The ratio of CO<sub>2</sub> gas increases in air ?.....

## **6 - Mention the importance of :**

1 – Chemical reactions :.....



**7 - Put (✓) or (x) then correct the false statement :**

- 1 - In the chemical reaction, the bonds of reactants and products are broken (.....)
- 2 - On burning a magnesium ribbon in air, a black powder is formed (.....)
- 3 - On burning a magnesium ribbon in air, its mass decreases (.....)
- 4 - Balancing the chemical equation means that the number of atoms of each element is the same in both reactants and products (.....)
- 5 - The mass of a molecule of chlorine gas equals 71 gm (Knowing that :  $\text{Cl} = 35.5$ ) (.....)
- 6 - The mass of a molecule of  $\text{NO}_2$  is more than the mass of a molecule of  $\text{NO}$  (.....)
- 7 - The reaction of magnesium with oxygen is considered a direct combination reaction between two nonmetal elements (.....)
- 8 - Reaction between nitrogen monoxide and oxygen is indirect combination reaction(..)
- 9 - When ammonia gas reacts with hydrochloric acids, white clouds of ammonium chloride are formed (.....)
- 10 - It is possible to convert the chemical energy in some chemical reactions to heat energy or electric energy (.....)
- 11 - The burning reactions are considered from the chemical reactions that pollute the environment (.....)
- 12 - Carbon oxides, nitrogen oxides and sulphur oxides result from fuel burning (.....)
- 13 - Carbon dioxide causes fainting and may lead to death (.....)
- 14 - Carbon dioxide gas has a greenhouse effect (.....)
- 15 - By increasing the ratio of  $\text{CO}_2$ , the air temperature decreases (.....)
- 16 - Carbon dioxide permits the penetration of thermal radiations produced from the Earth to the outer space (.....)
- 17 - Sulphur oxide and sulphur dioxide are examples of sulphur oxides that pollute the environment (.....)
- 18 - Sulphur oxides cause buildings corrosion and affect the digestive system (.....)

- 19 – Sulphur oxides and nitrogen oxides are basic gases (.....)
- 20 – Nitrogen oxides are formed during the occurrence of earthquakes (.....)
- 21 – Carbon monoxide has a bad effect on the nervous system and the eye (.....)

## 8 - Choose the correct answer :

1 – The substances that take part (share) in chemical reactions are called.....

- a. reactants                      b. products                      c. acids                      d. (a) and (b)

2 – The chemical reaction causes.....

- a. breaking the bonds between the products and forming new bonds between the reactants
- b. formation of bonds between the products then breaking bonds between the reactants
- c. breaking the bonds between the molecule of reactants and forming new bonds between the molecules of the products
- d. breaking the bonds between the products and the reactants

3 – The **bright magnesium** ribbon changes into **white powder** of.., when it burns in air

- a. magnesium nitrite                      c. magnesium hydroxide
- b. magnesium oxide                      d. magnesium dioxide

4 – On burning a magnesium ribbon in air, the weight of the formed **white powder** is.... the weight of magnesium ribbon

- a. more than                      c. equal to
- b. less than                      d. no correct answer

5 – Which of the following is a **balanced** chemical equation?.....

- a.  $\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$                       c.  $2\text{Mg} + \text{O}_2 \rightarrow \text{MgO}$
- b.  $\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$                       d.  $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$

6 – The sum of reactants masses in any chemical reaction is...the sum of products masses

- a. doubled                      b. more than                      c. equal to                      d. less than

7 - The ratio between the mass of the reactants in the chemical reaction to the mass of products is.....one according to the law of conservation of matter

- a. less than                      b. more than                      c. equal to                      d. (a) and (c)

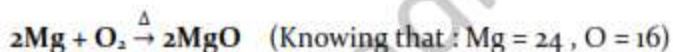
8 - The.....equation **verifies** the law of conservation of matter

- a.  $N_2 + H_2 \rightarrow NH_3$                       c.  $KCl + AgNO_3 \rightarrow AgCl + KNO_3$   
b.  $NO + O_2 \rightarrow NO_2$                       d.  $H_2O \rightarrow H_2 + O_2$

9 - If the molecule of carbon dioxide consists of one atom of carbon and two atoms of oxygen. Knowing that the mass of carbon is 12 and the mass of oxygen 16, so the mass of two molecules of carbon dioxide equals.....gm

- a. 22                      b. 44                      c. 88                      d. 33

10 - On applying the law of constant ratios on the following reaction, we find that.....



- a. each 48 g (Mg) combines with 32 g (O) to form 80 g (MgO)  
b. each 24 g (Mg) combines with 16 g (O) to form 40 g (MgO)  
c. each 12 g (Mg) combines with 8 g (O) to form 20 g (MgO)  
d. all the previous answers

11 - To form 54 gm of water, it is required to react to 48 gm of oxygen with 6 gm of hydrogen so, 2 gm of hydrogen combines completely with.....gm of oxygen

- a. 12                      b. 16                      c. 96                      d. 144

12 - Direct combination reaction takes place between.....

- a. two nonmetals                      c. a compound with another  
b. a metal and a nonmetal                      d. all the previous answers

13 - Ammonia combines with conc. HCl producing.....of ammonium chloride

- a. white ppt.                      b. brown clouds                      c. white clouds                      d. brown ppt.

14 - Chemical reactions are used in.....industry

- a. medicines                      b. food                      c. fertilizers                      d. all are correct

15 – The substances resulted from burning of **coal** and **cellulose fibers** cause.....

- a. headache
- b. fainting
- c. lung cancer
- d. all the previous

16 – **Burning of fuel** produces harmful gases such as.....

- a. carbon dioxide
- b. carbon monoxide
- c. sulphur oxide
- d. (a) and (b)

17 – Increasing the ratio of....gas in atmosphere leads to **increasing** the **air temperature**

- a. carbon monoxide
- b. carbon dioxide
- c. nitric oxide
- d. sulphur dioxide

18 – The gases that cause **building corrosion** are.....

- a. nitrogen oxides
- b. carbon oxides
- c. metal oxides
- d. no correct answer

19 – .....oxides resulted during the **time of lightning**

- a. Carbon
- b. Sulphur
- c. Nitrogen
- d. (a) and (b)

20 – The gases that affect the **nervous system** and the **eye** are.....

- a. nitrogen oxides
- b. carbon oxides
- c. sulphur oxides
- d. (a) and (c)

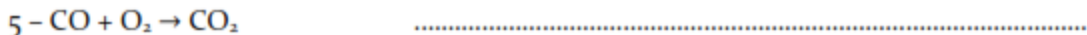
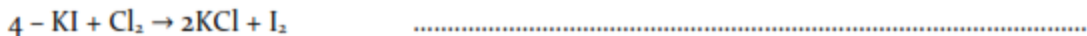
21 – All of these gases are **acidic** gases, **except**.....

- a. sulphur dioxide
- b. sulphur trioxide
- c. nitrogen oxides
- d. ammonia

**9 – Rewrite these chemical equations after balancing :**







**10 - Calculate the total mass of reactants and products :**

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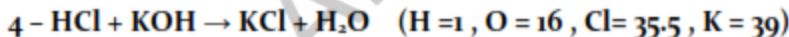
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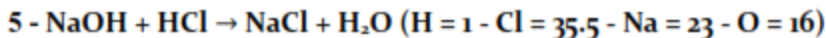
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6 – Hydrogen gas reacts with chlorine gas forming hydrogen chloride

Express this reaction with **word equation** and a **balanced symbolic equation** with achieving the **law of conservation of matter**

(Knowing that the **atomic mass** of  $H = 1$   $Cl = 35.5$ )

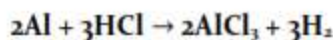
7 – Study the following chemical reaction then answer the questions :

**Sodium hydroxide + Nitric acid → Sodium nitrate + Water**

1. Write the **balance symbolic equation** that represents this chemical reaction
2. Show how the **conservation law of matter is achieved** in this reaction

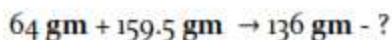
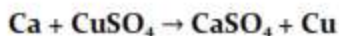
(Knowing that the **mass of elements** are  $H=1$   $O = 16$   $Na = 23$   $N = 14$ )

8 - Apply the **law of conservation of matter**, then **conclude** if the following **chemical equation** is **balanced** or **not balanced** and **why**?



Given that ( $Al = 27$  ,  $H = 1$  ,  $Cl = 35.5$ )

9 – What is the **mass of copper (Cu)** resulted from the following reaction?



.....

.....

.....

.....

.....

.....

10 – What is the **mass of calcium nitrate** produced from the **reaction of 74 gm of calcium hydroxide** with **126 gm of nitric acid**? Knowing that the formed **water** is **36 gm** according the equation



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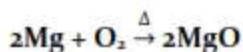
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11 – From the opposite reaction :



**48 gm of magnesium** reacts with **32 gm of oxygen** forming **80 g of magnesium oxide**  
**How many grams of magnesium** is required to form **10 gm of magnesium oxide**?

.....

.....

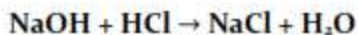
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~~11~~ Study the following reaction, then answer the following questions



(Knowing that:  $\text{H} = 1$  -  $\text{Cl} = 35.5$  -  $\text{Na} = 23$  -  $\text{O} = 16$ )

- Choose : The resulting **salt** from the reaction.....in **water**
  - a. Soluble
  - b. Insoluble
  - c. Precipitates
- **Calculate** : the **mass of sodium chloride** resulted from the reaction of **80 gm** of **sodium hydroxide** with a suitable amount of **hydrochloric acid**

.....  
.....  
.....  
.....

## **II – Write word and symbolic equation for the reactions :**

**1 – Direct combination between an element with another element**

- Word equation : .....
- Symbolic equation : .....

**2 – Direct combination between an element with a compound**

- Word equation : .....
- Symbolic equation : .....

**3 – Direct combination between a compound with another compound**

- Word equation : .....
- Symbolic equation : .....

## **12 - Write the chemical equation and determine its type :**

**1 – Burning of carbon in the presence of oxygen**

- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

2 – Reaction of **hydrogen** gas with **chlorine** gas

- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

3 – Burning a **magnesium** ribbon in air

- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

4 – Burning of **carbon monoxide** in the presence of **oxygen**

- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

5 – Reaction of **nitrogen monoxide** with **oxygen**

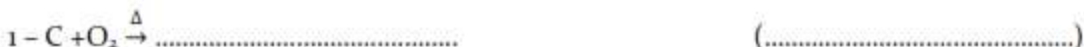
- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

6 – Reaction of **ammonia** gas with **concentrated hydrochloric acid**

- Word equation : .....
- Symbolic equation : .....
- Type of reaction : .....

**13 – Complete and mention the type of each reaction :**

---







#### 14 – Mention the harms (bad effects) (risks) of :

The gas	Its bad effects (risks)
Burning coal and cellulose fibers	..... .....
Carbon monoxide (CO)	.....
Carbon dioxide (CO <sub>2</sub> )	.....
Sulphur oxides (SO <sub>2</sub> – SO <sub>3</sub> )	.....
Nitrogen oxides	.....

#### 15 – Mention the name of the chemical pollutant that causes :

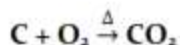
- 1 – Lung cancer (.....)
- 2 – Headache and fainting (.....)
- 3 – Greenhouse effect (.....)
- 4 – Building corrosion and breathing problems (.....)
- 5 – Nervous system irritation and eye inflammation (.....)

#### 16 – Answer the following question :

- 1 – Look at the opposite figure, then answer
  - a. What do you **observe**?.....  
.....  
.....
  - b. Write the **equation** and **type** of this reaction?.....  
.....  
.....



2 – From the opposite reaction :



- Show **how** the **conservation law of matter** is **achieved**, then **define** it?  
(Knowing that the mass of : **C** = 12, **O** = 16)
- What is the **effect** of the **produced gas** on the **environment**?
- What is the **type** of each of the following?
  - The **produced oxide**
  - The **chemical bond** in the produced molecule
  - The **chemical reaction** that is occurred

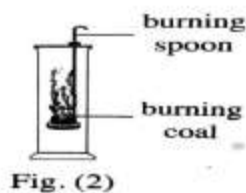
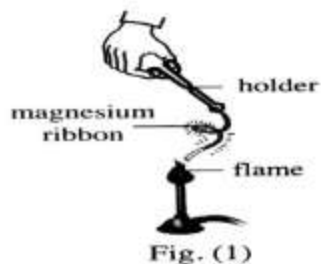
3 – If you have the following substances,

- |                           |           |
|---------------------------|-----------|
| - Conc. Hydrochloric acid | - Ammonia |
| - A piece of coal         | - Flame   |
| - Magnesium ribbon        |           |

Show by **balanced chemical equations only**, how can you **get (obtain)**?

- |                   |                 |
|-------------------|-----------------|
| a. A metal oxide  | c. White clouds |
| b. Nonmetal oxide | d. White powder |

4 - Study the opposite figure, then answer the following questions :



a. What is the **type of reaction** that represents each reaction (**write the equation**)

.....

.....

.....

.....

b. The **type** of the produced **compound** from the **two reactions**

.....

.....

.....

c. The **properties** of **magnesium** and the **piece of coal** (two only)

.....

.....

.....

.....

16 - How can we get carbon dioxide by two ways?

.....

.....

.....

.....

.....

*THANK YOU*

**Science**  
**First Preparatory**  
**Second Term**

**Unit TWO**

**Lesson ONE**

**QUESTIONS**



## 1 - Define each of the following :

---

- 1 - Force : .....
- 2 - Object's weight : .....
- 3 - Mass : .....
- 4 - Object's center of gravity : .....
- 5 - Electromagnetic forces : .....
- 6 - Nuclear forces : .....

## 2 - What is meant by :

---

- 1 - An object's weight is 60 N?.....
- 2 - Weight of an object its mass 1 kg in a certain region on the Earth's surface is 9.8 N?....

## 3 -Write the scientific term for each of the following :

---

- 1 - It is an effect that attempts (tries) to change to object's state from static to motion or vice versa or attempts (tries) to change the direction of motion
- 2 - The scientist who discovered the gravitational forces
- 3 - It is the ability of the Earth to attract that object to its centre  
It is the amount of Earth's gravitational to an object
- 4 - The measuring unit of object's weight

- 5 - The amount of matter that an object contains
- 6 - The effective point of an object's weight
- 7 - The product of multiplying object's mass by Earth's gravitational acceleration
- 8 - The magnetism resulted due to passing the electric current through a coil
- 9 - An instrument used in making the electric winches and the electric bells  
An instrument used to change the electric energy into magnetic energy
- 10 - An instrument used to change the mechanical energy into electric energy
- 11 - An instrument used to change the electric energy into mechanical energy
- 12 - The massive amount of energy that the atom stores in its nucleus
- 13 - Forces which are responsible for getting radioactive elements and invisible nuclear radiations that are used in medicine, industry and scientific researches
- 14 - Forces which are responsible for generating electricity and used in military purposes

#### **4 - Complete the following statements :**

---

- 1 - The force is an effect attempts to change the object's state from being static to..... or vice versa or attempts to change the.....of motion
- 2 - The book on the table remains constant, because there is **no**.....acting on it
- 3 - When you kick a **static** ball by your foot, a.....acts on it causing its.....
- 4 - **Force** can change the.....of **motion** of an object
- 5 - The **fundamental (universal) forces** in **nature** are.....,.....and.....
- 6 - Earth attracts the object to its.....by a force known as the object's.....
- 7** - The **weight** of an object is measured in.....unit
- 8 - Object's **weight** depends on.....and.....
- 9 -.....and.....are **factors affecting the gravitational force** between the **Earth** and the **object**

- 10 - The **mass** of any object is a.....value and its **measuring unit** is.....
- 11 - The **work done** to lift an object....., by increasing object's **mass**, as its weight.....
- 12 - The **effective point** of an object's.....is located at its centre and this known as.....
- 13 - The object's **weight** increases, as the **height** from the Earth's centre.....
- 14 - The object's **weight** decreases, as the **height** from the Earth's centre.....
- 15 - The Earth's gravitational acceleration at the **equator** is.....at the **two poles**
- 16 - When an object transfers from the **South Pole** to the **equator**, its **weight**.....
- 17 - When an object transfers from the equator to the north pole,.....is changed, while.....remains constant
- 18 - The.....of an object is a fixed value, while its weight.....from one place to another
- 19 - Object's weight = Earth's gravitational acceleration x .....
- 20 - The measuring unit of Earth's gravitational acceleration is.....
- 21 - If you know that the **Earth's gravitational acceleration** is  $10 \text{ m/sec}^2$ , so the **weight** of an object of **3 kg** mass is.....
- 22 - Some universal phenomenon such as.....and.....are caused by natural forces
- 23 - The electric current has a.....effect
- 24 - The **electromagnet** is made up of an isolated.....wire coiling around a bar of.....
- 25 - The **electromagnet** made by the idea of changing.....**energy** into.....**energy**
- 26 - The **electromagnet** is used in making.....and.....
- 27 - Electric **generator** works on changing.....**energy** into.....**energy**
- 28 - Electric **motor** works on changing.....**energy** into.....**energy**
- 29 - The **electric motor** used in making.....and.....
- 30 - An **atom** stores a massive amount of energy inside its.....
- 31 - **Radioactive elements** and **nuclear radiations** are used in.....and.....



32 - Strong nuclear forces are used in producing.....and in.....purposes

33- Egypt seeks to use.....energy in producing electricity

### 5 - Give reason for each of the following :

1 - The pencil is still in a static phase on the desk?.....

2 - The static ball moves when you kick it?.....

3 - When you push a wall, it doesn't move?.....

4 - The mass of the object is fixed by changing its position on the Earth's surface?.....

5 - The Object's weight changes from one place to another on the Earth's surface?.....

6 - The gravitational acceleration changes on Earth's surface from one place to another?.....

7 - The weight of the object at the South Pole is greater than its weight at the equator?....

8 - The weight of the object is always greater than its mass?.....

9 - The wrought iron attracts iron filings after putting it inside an electric coil?.....

10 - The importance of the electromagnet?.....

11 - The importance of dynamo in the case of cutting off the electric current?.....

12 - Electric motor is used in manufacturing of fans and washing machines?.....

13 – The importance of nuclear force?.....

## 6 – What happens when :

1 – You kick a static ball with your foot?.....

2 – You push a wall with your hand?.....

3 – An attacker hits the moving ball with his head?.....

4 – The **weight** of a bag of sugar is 1 kg phrase is scientifically **not** accurate?.....

5 – Approaching from the centre of the Earth (related to the Earth's gravitational acceleration)?.....

6 – Moving away from the centre of the Earth (related to the Earth's gravitational acceleration)?.....

7 – Approaching from the centre of the Earth (related to the mass and the weight of an object)?.....

8 – Moving away from the centre of the Earth (related to the mass and the weight of an object)?.....

9 – Migration of bird from the South Pole to the equator (related to the mass and the weight of the bird)?.....

10 – An astronaut moves from the Earth to the Moon (according to the mass and the weight of the astronaut)?.....

11 - The object's mass increases (relative to the object's weight)?.....

12 - An electric current flows through an isolated copper wire which is coiled spirally around iron bar and approach it to iron filings?.....

13 - Cutting off an electric current from an electromagnet lifts pieces of iron?.....

## **7 - Mention one use for each of the following :**

1 - The electromagnet : .....

2 - Electric winches (cranes) : .....

3 - Electric generator (Dynamo) : .....

4 - Electric motor : .....

5 - Weak nuclear force : .....

6 - Strong nuclear force : .....

## **8 - Put (✓) or (x) then correct the false statement :**

1 - When a force acts on a moving body, the force may change its direction only (.....)

2 - You can't push a wall with your hands, as the force acting on it is improper (.....)

3 - The force is measured in Newton (.....)

4 - Fundamental forces in nature are divided into five main kinds (.....)

5 - The scientist Coulomb who discovered the Earth's gravitational (.....)

6 - Force is an amount of Earth's gravitational to the body (.....)

- 7 - The weight is measured in kilogram unit (.....)
- 8 - The weight (gravitation forces) depends on the mass of the object only (.....)
- 9 - The exerted work to lift an object decreases by increasing the object's mass (.....)
- 10 - The gravitational force between an object and the Earth decreases, as the mass of the object decreases (.....)
- 11 - The effective point of the object's weight is at its centre of gravity (.....)
- 12 - Earth's gravitational acceleration increasing by approaching to Earth's centre (.....)
- 13 - The gravitational force of the Earth to a rocket increases as it moves away from it(....)
- 14 - The weight of the object changes by changing its place on the Earth's surface (.....)
- 15 - Object's weight is a constant value (.....)
- 16 - The weight of a person at the equator is equal to its weight at the two poles (.....)
- 17 - The mass of the person at the South Pole is less than that its mass at the equator(....)
- 18 - Object's weight = its mass + gravitational acceleration (.....)
- 19 - The electric current has a magnetic effect (.....)
- 20 - The bar of the electromagnet made of copper (.....)
- 21 - The electromagnet is used in making the blender (.....)
- 22 - Dynamo changes the heat energy into electric energy (.....)
- 23 - The electric generator converts mechanical energy into electric energy (.....)
- 24 - Electric generator is used in making the washing machine (.....)
- 25 - Strong nuclear energy is used in generating solar energy (.....)
- 26 - Egypt seeks to use mechanical energy in producing medicines (.....)

**9 - Mention the idea of operation of each of the following :**

- 1 - Electromagnet :.....
- 2 - Electric generator (Dynamo) :.....



3 - Electric motor :.....

## 10 - What is the force responsible for :

---

- 1 - Falling of objects towards the Earth's surface (.....)
- 2 - Changing the mechanical energy into electric energy (.....)
- 3 - The emission of some invisible radiations from radioactive elements (.....)
- 4 - Producing electricity from nuclear energy (.....)

## II - Choose the correct answer :

---

- 1 - A force is an effect that .....
  - a. always changes the state of an object's motion
  - b. never changes the state of an object's motion
  - c. always changes both object's position and direction
  - d. may change the state of an object's motion
- 2 - When you **kick** a ball with your foot, a force acts on the ball will change the.....
  - a. direction of the motion of the ball
  - b. state (phase) of the ball into motion
  - c. mass of the ball
  - d. (a) and (b)
- 3 - The **fundamental forces** in **nature** are.....
  - a. gravitational forces
  - b. electromagnetic forces
  - c. nuclear forces
  - d. all the previous answers
- 4 - .....is the **scientist** who discovered the Earth's gravitational
  - a. Plank
  - b. Newton
  - c. Archimedes
  - d. Coulomb
- 5 - The **apple** falls from the tree due to the.....
  - a. electromagnetic force
  - b. Earth's gravitational force
  - c. weak nuclear force
  - d. strong nuclear force



**6** – The **attraction force** between **an object** and the **Earth** is **equal** to the.....

- a. object's mass
- b. object's weight
- c. Earth's gravitational acceleration
- d. centrifugal force

**7** – The **amount** of **Earth's gravitational** to **pull** the **object** is.....

- a. object's mass
- b. object's weight
- c. centrifugal force
- d. Earth's gravitational acceleration

**8** – An object's **weight** on the Earth's surface is **related to**.....**forces**

- a. electromagnetic
- b. gravitational
- c. nuclear
- d. (A) and (B)

**9** – The **weight** of an object is **measured** in.....

- a. Kilogram
- b. cm
- c. Newton
- d.  $\text{m/sec}^2$

**10** – The **work done** to **lift** the objects **upwards** increases by increasing.....

- a. object's volume
- b. object's mass
- c. object's density
- d. no correct answer

**11** – Earth's gravitational acceleration is **changed** from **one place** to **another** on the Earth's surface because of.....

- a. distance from the Earth's centre
- b. object's mass
- c. Earth's mass
- d. various temperatures

**12** – The **object's weight** changes by changing its.....

- a. velocity
- b. volume
- c. position on the Earth's surface
- d. (b) and (c) together

**13** – The **ratio** between the **weight** of an **object** at the **two poles** and its **weight** at the **equator** is.....**one**

- a. more than
- b. less than
- c. equal to
- d. (a) and (b)

14 – The **ratio** between the **mass** of an object at the **two poles** and **its mass** at the **equator** is.....**one**

- a. more than
- b. less than
- c. equal to
- d. (a) and (b)

15 – The **multiplying** of object's mass **by** Earth's gravitational acceleration equals.....

- a. object's volume
- b. object's mass
- c. object's density
- d. object's weight

16 – If the **mass** of an object is **2 kg** and the **Earth's gravitational acceleration** equals **10 m/sec<sup>2</sup>**, so the object's **weight** equals.....

- a. 0.2 Newton
- b. 2 Newton
- c. 20 kg
- d. 20 Newton

17 – If the **mass** of an object **decreases** to **half**, the **weight**.....

- a. increases to the double
- b. decreases to half
- c. still constant
- d. no correct answer

18 – The **bar** used in the **electromagnet** is made up of.....

- a. isolated copper
- b. steel iron
- c. wrought iron
- d. aluminium

19 – The idea of how the **electromagnet** works to change.....

- a. mechanical energy into electric energy
- b. electric energy into magnetic energy
- c. electric energy into mechanical energy
- d. magnetic energy into mechanical energy

20 – **Electromagnet** is used in making the.....

- a. calculator
- b. electric bell
- c. microscope
- d. night vision system

21 – The.....**changes** the **mechanical** energy into an **electric** energy

- a. electromagnet
- b. dynamo
- c. electric motor
- d. (a) and (b)

22 – The **electric motor** changes the.....

- a. mechanical energy into electric energy
- b. electric energy into magnetic energy
- c. electric energy into mechanical energy
- d. magnetic energy into mechanical energy

23 – The **electric motor** is used in the **manufacture** of.....

- a. radio
- b. electric bell
- c. blender
- d. watch

24 – **Electromagnetic** force affects the **performance (operation)** each of the following, **except** for.....

- a. electric generator
- b. electric motor
- c. electromagnet
- d. car internal combustion engine

25 – **Weak** nuclear forces are used in.....

- a. producing electricity
- b. military purposes
- c. scientific researches
- d. all the previous uses

26 – The **nuclear radiations** used in **medicine** are produced from.....

- a. gravitational forces
- b. electromagnetic forces
- c. weak nuclear forces
- d. strong nuclear forces

27 – **Strong** nuclear forces are used in.....

- a. medicine
- b. industry
- c. scientific researches
- d. military purposes

28 – The idea of working the **atomic bomb** depends on the use of.....forces

- a. gravitational forces
- b. electromagnetic forces
- c. weak nuclear forces
- d. strong nuclear forces

29 – We can obtain **electric energy** from all of the following, **except**.....

- a. dynamo
- b. electric motor
- c. electric power stations
- d. strong nuclear reactions

## 12 – Cross the odd word – Write the scientific term :

---

1 – Gravitational forces – Friction forces – Nuclear forces – Electromagnetic forces

- The odd word : .....
- The scientific term of the remaining words : .....

2 – Work – Mass – Weight – Earth's gravitational acceleration :

- The odd word : .....
- The scientific term of the remaining words : .....

3 – Electric generator – Electric motor – Electric bell – Bell handwork

- The odd word : .....
- The scientific term of the remaining words : .....

## 13 – Solve these problems :

---

1 - An object whose **mass** 5000 **gm** on the Earth's surface .Calculate its **weight** knowing that the **acceleration due to gravity** =  $9.8 \text{ m/sec}^2$

.....

.....

.....

.....

2 – Calculate the **weight** of an object of 5 **kg** mass (knowing that the **acceleration due to the gravitational** is  $10 \text{ m/sec}^2$ )

.....

.....

.....

.....

3 – Calculate the **mass** of a child, its weight is 392 **newton** (knowing that **acceleration due to gravitational** is  $9.8 \text{ m/sec}^2$ )

.....

.....

.....

.....



4 – An object is put near to the Earth's surface and the Earth's **gravitational force** is 34.3 **Newton**. Calculate

a. The object's **weight**

b. The object's **mass** (knowing that acceleration due to gravitational is  $9.8 \text{ m/sec}^2$ )

5 – The **weight** of an object on **Mars** is 32 **Newton** and on Earth is 80 **Newton**. Find the **gravitational acceleration** on Mars, if **gravitational acceleration** of Earth is  $10 \text{ m/s}^2$

6 – If you have **two objects** (A) and (B), the **weight** of object (A) is **doubled** the **weight** of object (B), and **mass** of object (B) **equals** 4 kg. So **weight** of object (A) = ...N

(knowing that the **Earth's gravitational acceleration** =  $10 \text{ m/sec}^2$ )

7 – If you have **two objects** (A) and (B), the **mass** of object (A) is **doubled** the **mass** of object (B) and the **weight** of object (B) **equals** 400 **Newton**. Calculate the **mass** of object (A) (knowing that the **Earth's gravitational acceleration** =  $10 \text{ m/sec}^2$ )

8 – An object, whose **weight** is 36 **Newton** on the **Earth's surface** and 6 **Newton** on the **Moon's surface**. Calculate the **ratio** between the **gravitational acceleration** on the **surface** of the **Moon** and the **Earth**

9 – An object, whose **mass** is 30 **kg** on the surface of the **Moon**. Calculate its **weight** on

a. **Earth's** surface

b. **Moon's** surface

(Knowing that the **gravity** of the **Moon** equals  $\frac{1}{6}$  the **gravity** of **Earth** and **Earth's** **gravitational acceleration** =  $9.8 \text{ m/sec}^2$ )

10 – Calculate the **gravitational acceleration** on the surface of **Uranus** planet if the **weight** of an object on it equals 200 N. and its **mass** on **Earth's** surface equals 26 **kg**

11 – A 100 **kg** rocket was shot **vertically** upward, the rocket hit a target and lost **three quarter** its **mass** and fell to the ground. **Compare** between the **weight** of the rocket **before** and **after** shooting

#### 14 – Compare between each of the following :

1 – Mass and weight

P.O.C	Mass	Weight
Definition		
Effect of changing place		
Law used		
Measuring unit		

## 2 – Electric generator and electric motor

P.O.C	Electric generator	Electric motor
Input and output energy	..... ..... .....	..... ..... .....
Uses	..... .....	..... .....

## 15 – Answer the following questions :

1 – Mention the **relation** between each of the following :

- a. The mass of the object at the south pole and its mass at the equator

.....  
.....

- b. The Earth's gravitational acceleration at the equator and the south pole

.....  
.....

2 – Mention the **mathematical relation** that links between the weight and mass

3– Mention the **factors** affecting the object's weight

- ..... ○ .....

## 16 – Study the following figure, then answer :

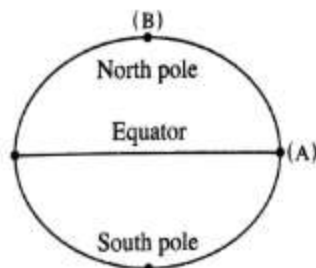
1 – From the opposite figure, answer the following questions :

- a. Why is the weight of objects different at the equator from their weight at the two poles?.....

.....  
.....

- b. What happens to the weight of an object when it transfers from point (A) to point (B)? Why?.....

.....  
.....



2 - From the opposite figure, answer the following questions :

a. What is the name of this device?.....

b. What is its idea of operation?.....

c. What happens when you disconnect one end of the wire from the battery?.....

d. What do you conclude?.....



17 - Mention the measuring unit each of the following :

1 - The measuring unit of force (.....)

2 - The measuring unit of weight (.....)

3 - The measuring unit of mass (.....)

4 - The measuring unit of Earth gravitational acceleration (.....)

**THANK YOU**



**Science**  
**First Preparatory**  
**Second Term**

**Unit TWO**

**Lesson TWO**

**QUESTIONS**

## **1 - Define each of the following :**

---

- 1 - Inertia :.....  
.....
- 2 - Friction forces :.....  
.....
- 3 - Forces inside living systems (biological forces) :.....  
.....

## **2 - Write the scientific term for each of the following :**

---

- 1 - It is a property by which the object resists the change of its state of rest or motion at a regular speed in straight line unless an external force acted on it
- 2 - Technological application is used in cars and planes to **stop** the forces of inertia when a sudden change occurs in motion
- 3 - Resistance forces (against motion) originated between the object in motion and the medium touching it
- 4 - Forces help in moving and stopping cars and bus
- 5 - Forces that enable living organisms to do different biological operations and keep their survival and vitality

## **3 - Complete the following statements :**

---

- 1 - .....and.....are among the accompanied forces to motion
- 2 - Inertia is a property of an object has to.....the change of its.....
- 3 - Any object inside a moving bus have the same.....of the bus, so when the bus stops suddenly, objects fall on the ground due to the force of.....
- 4 - Passengers and the driver in a moving car are.....once the car suddenly stops due to the.....
- 5 - If a football player is tripped during running forward, he will.....and.....on the ground

- 6 - Passengers are.....once the **vehicle** starts moving forward after it was at rest
- 7 - Policemen advise drivers using.....in cars and planes, as they act on.....the forces of inertia
- 8 - .....forces are resistance forces originated between a moving object and the medium touching it
- 9 - The relation between the speed of the object and friction force is a.....relationship
- 10 - .....and.....are from the benefits of friction
- 11 - .....force prevents feet from slipping on road during.....
- 12 - On rubbing matches on the side of a matchbox ,.....produces.....
- 13 - Friction force causes a great loss of.....energy because this energy is changed into.....energy
- 14 - Lubricating and oiling mechanical machines reduce the.....between moving parts and prevent their.....
- 15 - The uni-cellular organisms are from.....living systems, while multicellular organisms are from.....living systems
- 16 - Heart muscle .....and.....helps heart to pump blood all over the body
- 17 - Among the forces inside living systems is the pulses inside the.....
- 18 - Liquids transport through the walls of the cells from the.....concentration to the.....concentration
- 19 - Rising of water and salts from the soil to the plant is against the.....
- 20 - The contraction and.....of muscles help the body organs to.....

#### **4 - Give reason for each of the following :**

- 1 - The car passengers are rushed forward when the car stops suddenly?

The football player is rushed forward and falls if he is tripped during running?

The fan is going to turn after the electric current goes off?.....

.....

**2** – The car passengers are rushed backward when the car moves suddenly?.....

**3** – Policemen advise drivers to use safety belts in their cars?.....

**4** – Once you use the brakes of a moving bicycle, its speed decreases gradually until it stops?.....

**5** – Rising the temperature of the outer surface of the spaceship body during landing in the Earth's atmosphere?.....

**6** – Cars that travels on snow have to carry chains that fit around tyres?

Car tyres are covered with a very coarse substance?.....

**7** – It is difficult to pull the boat on the sand of beach and easily in water?.....

**8** – You are able to run over grass faster than you run over a ground cover with ice?.....

**9** – Friction force is a double edged weapon?.....

**10** – As you drive a car in a city traffic for some time, the brakes become hot?

The match is ignited when it is rubbed with a rough surface?.....

**11** – Continuous pouring water on tyre of lathe toothed during cutting metals?.....

**12** – Spare parts are covered with greases?

Lubricating and oiling mechanical machines?.....

**13** – Importance of the forces inside living organisms?.....



14 – Heart muscles contracts and relaxes regularly?.....

15 – Blood is pumped all over the body organs?.....

16 – Water and salts can go up from the soil to the plant?.....

17 – Explosion of a semi-permeable bag filled with salty water when putting it in a basin with fresh water?.....

18 – Body muscles contract and relax?.....

## **5 – What happens when :**

1 – You hit a paper placed over a glass cup and a coin placed over the paper?.....

2 – A moving bus stops suddenly?.....

3 – A car at rest suddenly moves forward?.....

4 – The passengers don't use safety belts in cars?.....

5 – You ride a bike along a flat road, then you use brakes?.....

6 – Friction between two objects quickly? (Concerning the temperature).....

7 – Mechanical machines are not lubricated?.....

8 – Stopping the movement of a heart muscle? .....

9 – Contraction and relaxation of body muscles?.....

## 6 – What is the importance of :

1 – Safety belts :.....

2 – Friction force :.....

3 – Lubricating and oiling machines :.....

4 – Forces inside the living systems :.....

5 – Contraction and relaxation of heart muscle :.....

6 – Contraction and relaxation of body muscles :.....

## 7 – What are the harms of :

1 – Friction force :

a. ....

b. ....

c. ....

## 8 – Put (✓) or (x) then correct the false statement :

1 – Friction is a property of an object has to resist the change of its state (.....)

2 – When the speed of the car is 50 km/hr, the speed of the driver is zero (.....)

3 – Passengers are rushed backward when a car stops suddenly (.....)

4 – Safety belts in cars work on increasing the forces of inertia (.....)

- 5 - Friction always opposes motion (.....)
- 6 - Friction may occur between the surface of a solid object and air (.....)
- 7 - As the friction between the car tyres and the road increases, car's speed decreases (...)
- 8 - Slowing down of a moving bicycle on a road by brakes is due to inertia (.....)
- 9** - Car brakes are from applications on Earth's gravitational forces (.....)
- 10 - Car tyres are covered with a very smooth substance to increase the friction with the roads (.....)
- 11 - Friction prevents feet from slipping on roads during walking (.....)
- 12 - Friction causes a great loss of electric energy by changing it into heat energy (.....)
- 13** - The idea of lubricating machines depends on reducing its speed (.....)
- 14 - Lubricants and oils have no effect on friction (.....)
- 15 - There are forces inside living systems including single-cellular organisms (.....)
- 16 - There are forces inside amoeba to keep it survival (.....)
- 17 - Heart muscle contraction and relaxation is one of the forces inside living systems (..)
- 18 - Liquids transport through pores and the cells of walls from the higher concentration to the lower one (.....)
- 19** - The liquids transport through pores and the cells of walls from the lower to the higher concentration by the effect of inertia (.....)
- 20 - Contraction and relaxation of body muscles help in moving (.....)

### **9 - Choose the correct answer :**

- 1 - All the following are accompanied forces to motion, **except**.....
  - a. friction force
  - b. gravitational force
  - c. force of inertia
  - d. forces inside living systems
- 2** - The inertia force affects the.....objects
  - a. moving
  - b. static
  - c. moving and static
  - d. no correct answer



3 – The coin falls in the cup by a rapid hitting of the paper is an **application of**.....

- a. friction force
- b. gravitational force
- c. force of inertia
- d. forces inside living systems

4 – When a moving bus **stops** suddenly, the passengers and the driver.....

- a. rush backward
- b. rush forward
- c. turn upside down
- d. tend to lean

5 – When a **horse** is **tripped**, the horse rider is suddenly **rushed forward**, this is related to the force of.....

- a. inertia
- b. centrifugal
- c. gravitational
- d. pushing

6 – Passengers are **rushed back** when a car starts moving suddenly, this is related.....

- a. friction force
- b. gravitational force
- c. force of inertia
- d. centrifugal force

7 – Electric fan still works for few seconds after cutting the electric current due to the force of.....

- a. inertia
- b. centrifugal
- c. gravitational
- d. force

8 – All the following are examples of inertia, **except**.....

- a. once the car starts moving forward, the passengers are rushed backward
- b. passengers are rushed forward if the moving car stops suddenly
- c. if a football player is tripped during running forward, he will rushed forward
- d. the gravitational of bodies to the Earth

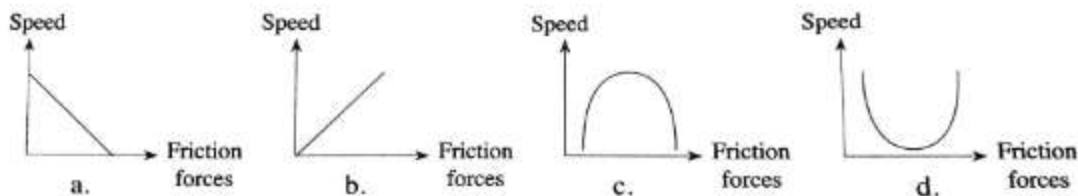
9 - .....is a **technological application** on inertia force

- a. Car tyres
- b. Safety belts
- c. Contraction and relaxation of muscles
- d. No correct answer

10 – **Friction force** is always.....

- a. in the same direction of motion
- b. against motion
- c. perpendicular to motion
- d. all the previous answers

11 - Figure...shows the **relation** between the **friction force** and the **speed** of the object



12 - The **car brake performance** is an application of.....

- a. gravitational forces
- b. friction forces
- c. centrifugal forces
- d. forces on inertia

13 - When using the **bicycle brakes**,.....

- a. the speed of the bicycle decreases
- b. the friction force decreases
- c. the centrifugal force increases
- d. the force of inertia decreases

14 - **Car tyres** are covered with a **very coarse** substance to.....

- a. reduce the friction with the road
- b. increase the gravitational of wheels to road
- c. reduce the air resistance
- d. increase the friction with the road

15 - The following forces are application of friction, **except**.....

- a. walking on foot on a road
- b. car moving because of its wheel turning
- c. the work of electric generator (dynamo)
- d. stopping the car using the brakes

16 - The **friction force** is **less than** the force that causes movement in case of.....

- a. putting a ladder bases on a wall
- b. using the brakes of a bike
- c. walking along the way
- d. all the previous

17 – Friction causes a **great loss of mechanical energy** because this energy is changed into.....energy

- a. light
- b. electric
- c. heat
- d. magnetic

18 – The **idea of machines lubrication** depends on the decrease in.....

- a. their weights
- b. forces of inertia
- c. friction forces
- d. forces of gravity

19 – In which of the following examples, friction is considered a **problem**?.....

- a. Burning a match
- b. Preventing feet from slipping during walking
- c. Using brakes
- d. Rising the temperature of mechanical machine parts

20 – .....enable living organisms to do their different **biological operations**

- a. Friction force
- b. Gravitational force
- c. Force of inertia
- d. Forces inside living systems

21 – From the **examples of forces inside living systems** is (are).....

- a. pulse inside blood vessels
- b. inertia
- c. brakes
- d. all the previous answers

22 – The heart muscle **contraction** and **relaxation** are interfered from.....

- a. inhalation and exhalation processes
- b. the pulse inside blood vessels
- c. the movement of food in digestive system
- d. no correct answer

23 – **Liquids** transport through **pores** and the **walls** of cells from.....

- a. outside to inside
- b. inside to outside
- c. low concentration to high concentration
- d. high concentration to low concentration

24 – Water transports from soil to leaves of plant by the effect of.....

- a. gravitational forces
- b. biological forces
- c. forces of inertia
- d. friction forces

## 10 – What are the forces responsible for :

- 1 – Falling the coin inside the cup on pulling the paper down It (.....)
- 2 – Ease the movement on asphalt and difficulty on the gravel (.....)
- 3 – Pulse inside blood vessels (.....)
- 4 – The rise of water and salts from the soil to the leaves of plant (.....)

## 11 – Mention how the friction force is useful or harmful :

- 1 – Walking on the ground (.....)
- 2 – Climbing a rope (.....)
- 3 – Pushing the fridge across the floor (.....)
- 4 – Using brakes of a car (.....)
- 5 – Parts of machines getting hot and wearing away (.....)
- 6 – Parachuting from a plane (.....)
- 7 – Skating on ice (.....)

## 12 – Study the following figures, then answer :

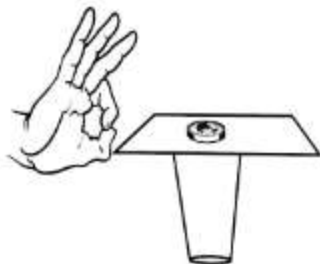
### 1 – From the opposite figure

- a. Mention the reason for falling the metallic coin in the cup when pushing the paper quickly

.....  
.....

- b. What do you conclude from that?

.....  
.....





2 – The opposite figure shows a static object affected by a pulling force equals 120 Newton for right and a friction force by Earth equals 150 Newton for left

Answer the following questions :

- a. Why doesn't the box move from its position?

.....  
 .....



- b. Why doesn't the box move to left although the value of friction force is more than the value of the pulling force?

.....  
 .....

3 – Adel and Mary draw a horizontal line at the top of wooden inclined plane as shown in the figure.

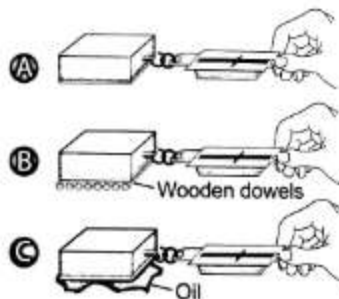
Adel put his car at the drawn line and left it to move, the car travels 216 cm. When Mary does the same procedure, her car travels 242 cm.



1. In which car the friction is larger?.....  
 .....
2. Why do both cars stop?.....  
 .....
3. If Mary puts some sand on the inclined place and leaves her car to travel along it. On which plane does the car travel more slowly and why?.....  
 .....

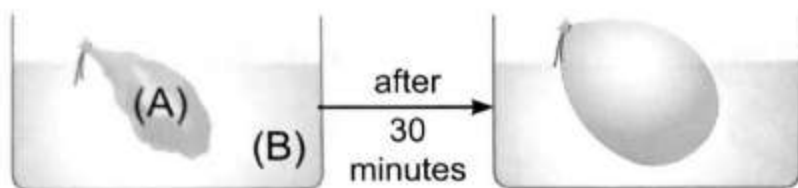
4 – From the opposite figure :

1. Friction in (B) is.....than in (A)
2. With lubrication (C) you need.....(more/ less) force to move the object
3. Lubrication.....(increases/ decreases) friction



5 – A balloon is filled with unknown concentration solution and put in a basin filled with another unknown concentration solution, after 30 minutes the balloon is inflated.

Answer the following questions :



1. The concentration of solution (A) is.....that of solution (B)  
a. more than                      b. equal to                      c. less than
2. Which of the two solutions has a concentration 10% and which one has 40%?  
.....  
.....
3. What do you expect to happen to the balloon when transferred to a solution, its concentration is 70%?  
.....  
.....
4. What is the force that causes this?  
.....  
.....

*THANK YOU*



**Science**  
**First Preparatory**  
**Second Term**

**Unit TWO**

**Lesson THREE**

**QUESTIONS**

## 1 - Define each of the following :

---

1 - Motion :.....  
.....

2 - Speed :.....  
.....

3 - Reference point :.....  
.....

4 - Relative motion :.....  
.....

5 - Transitional motion :.....  
.....

6 - Periodic motion :.....  
.....

7 - Mechanical waves :.....  
.....

8 - Electromagnetic waves :.....  
.....

## 2 - What is meant by each of the following :

---

The speed of an object is 20 m/sec?.....  
.....

## 3 - Write the scientific term for each of the following :

---

1 - A change in an object's position as time passes according to the position of another object

2 - It is the distance covered by an object in a unit time

3 - It is a fixed point used to determine the object's position or to describe its movement

4 - A change in an object's position or direction as time passes relative to a fixed point

- 5 – A change in object's position as time passes relative to a fixed point from initial position to final position
- 6 – An object's position changes as time passes from its initial position to the final one
- 7 – The motion which is regularly repeated at equal periods (intervals) of time
- 8 – A kind of motion which is produced by a simple pendulum
- 9 – A kind of motion which is produced by fan arms while it is on
- 10 – A kind of motion by which sound and light are transferred from one place to another
- 11 – Waves need a medium to transfer through
- 12 – Waves that are produced due to the vibration of medium particles
- 13 – Waves don't need a medium such as air to propagate through
- 14 – Waves that are accompanied by electromagnetic force
- 15 – Rays which are accompanied to the Sun rays
- 16 – Waves used in examining and curing sets for the human body
- 17 – Waves used in musical instruments and amplifiers
- 18 – Waves used in sterilizing the sets of surgical operation rooms
- 19 – Waves used in photographing bones and examining mineral raw in industry
- 20 – Waves used in studying the inner structure of crystals
- 21 – Waves used in discovering and treatment of some swellings (tumors)
- 22 – Waves used in making photographic cameras and data show
- 23 – Waves used in making remote sets, night vision apparatus and cooking food

#### **4 – Complete the following statements :**

- 1 – Relative motion is the change in an object.....or.....as the time passes relative to another object or a fixed point known as.....

- 2 - When two cars move in the same direction at the same speed, drivers imagine that the two cars.....moving and no motion will be observed
- 3 - If car (A) moves at a higher speed than car (B), the driver in car (A) will see in the mirror that car (B) moves in.....direction
- 4 - Types of motion are.....motion and.....motion
- 5 - Transitional motion is the motion in which the object'.....is changed from time to time relative to a fixed frame of reference from.....position to another.....one
- 6 - .....motion is a motion which is regularly repeated in.....periods of time
- 7 - .....and.....are examples of periodic motion
- 8 - The motion of simple pendulum is considered.....motion, while that is produced from throwing a stone in water is considered as.....motion and both of them are considered as forms of.....motion
- 9 - The movement of the Moon around the Earth is a.....motion, while that of the bicycle and the train is a.....motion
- 10 - Transitional motion is not considered a periodic motion because it has.....and .....positions and its doesn't.....its motion
- 11 - Waves are classified into two kinds, which are.....waves and.....waves
- 12 - Mechanical waves don't transfer through.....but they need a.....like air to transfer through
- 13 - Mechanical waves are produced due to the.....of the medium.....
- 14 - Sound waves and.....waves are example of.....waves
- 15 - Electromagnetic waves are accompanied by.....forces
- 16 - Electromagnetic waves don't need a.....to travel through, so they can travel through.....
- 17 - Light waves can spread out in all media and.....with a speed of.....m/s
- 18 - .....and.....are examples of electromagnetic waves
- 19 - .....and.....rays are emitted from the Sun



- 20 - Water wave is an example of.....waves, while light wave is an example of.....waves
- 21 - Thunder sound transfers in a form of.....waves, whereas lightening flash transfers in a form of.....waves
- 22 - We see lightning before hearing thunder, because the speed of sound is.....than the speed of light
- 23 - The violin and the guitar are among.....musical instruments, while lute and reed pipe are among.....musical instruments
- 24 - .....rays are used in sterilizing the sets of surgical operation rooms, while.....rays are used in discovering some swellings
- 25 - .....and.....are among the applications of X-rays
- 26 - Visible light is used in....., TV cameras and in.....
- 27 - .....rays are used in night vision apparatus, while.....rays are used in photographic cameras
- 28 - .....rays are used in cooking food as they have.....effect
- 29 - .....rays are used in remote sensing instruments

### 5 - Give reason for each of the following :

- 1 - The movement of trees and buildings related to a person in a moving car is considered a relative motion?.....
- 2 - A train motion is a transitional motion?.....
- 3 - Vibrating, circular, wave motion are considered as periodic motion?.....
- 4 - Transitional motion differs from periodic motion?.....
- 5 - Sound and water are mechanical waves?.....

- 6 – Astronauts can't hear each other voices directly in space?.....
- 7 – Light and radio waves are electromagnetic waves?.....
- 8 – Sound needs a medium to travel through, while light travels through space?.....
- 9 – We receive sunlight at the same time we don't hear the sound of solar explosions?.....
- 10 – We see lightning before hearing thunder although they occur at the same time?.....
- 11 – It is more favourable using wireless connection than amplifiers when two people are communicating?.....
- 12 – Exposing dental treatment tools for ultraviolet rays before reuse?.....
- 13 – X-rays are used in photographing bones ?.....
- 14 – X-rays are used in examining mineral raws in industry ?.....
- 15 – Gamma rays have medical purposes ?.....
- 16 – Infrared rays are used in cooking?.....

**6 - Put (✓) or (x) then correct the false statement :**

- 1 – When your car moves at a higher speed and another car which moves in the same direction passes, you will imagine that the other car goes forward (.....)
- 2 – When you are in a moving car and another car moves beside you in the same direction at the same speed, you will imagine that the two cars don't move (.....)



- 3 - The fixed point that is used to determine the position of objects is known as the reference point (.....)
- 4 - Motion is divided into two types which are circular and transitional motion (.....)
- 5 - Periodic motion is changed between initial and final positions (.....)
- 6 - The motion of a boy from his house to school is a periodic motion (.....)
- 7 - Simple pendulum motion is a wave motion (.....)
- 8 - The movement of the Moon around the Earth is a circular motion (.....)
- 9 - Water waves motion is a periodic motion (.....)
- 10 - Transitional motion differs from periodic motion as it has initial and final points and it doesn't repeat its motion (.....)
- 11 - Mechanical waves don't need a medium to transfer through and can transfer through vacuum (.....)
- 12 - Sound waves are produced due to the vibration of medium particles (.....)
- 13 - Sound waves can travel through air, water and wood (.....)
- 14 - The speed of mechanical waves is extremely high (.....)
- 15 - Water waves are electromagnetic waves (.....)
- 16 - Electromagnetic waves can travel through space (.....)
- 17 - Electromagnetic waves (as light) can propagate through space only (.....)
- 18 - Electromagnetic waves are accompanied by gravitational forces (.....)
- 19 - The speed of light is about 300 m/sec (.....)
- 20 - Ultraviolet and Gamma rays are emitted from the Sun (.....)
- 21 - We hear thunder before seeing lightning (.....)
- 22 - Ultrasonic waves are from the applications of electromagnetic waves (.....)
- 23 - Sound waves are used in pneumatic musical instruments as violin and guitar (.....)
- 24 - Infrared rays are used in sterilizing the sets of surgical operation rooms (.....)

- 25 – Gamma rays are used in photographic bones (.....)
- 26 – X – rays are used in examining mineral raws in industry (.....)
- 27 – Gamma rays are used in treatment and discovering some swellings (.....)
- 28 – We use infrared in light shows (.....)
- 29 – X – rays are used in cooking food as they have heat effect property (.....)
- 30 – Ultraviolet rays are used in making remote sets and night vision apparatus (.....)

## 7 - Choose the correct answer :

1 – The change in an object's position or direction as the time passes relative to a frame of reference is called.....motion

- a. periodic
- b. vibrating
- c. relative
- d. circular

2 – When two cars move in the **same** direction with a velocity 80 km/h. the **driver** of the **first** car imagines that the **second** car moves with velocity.....km/h

- a. zero
- b. 80
- c. 160
- d. 40

3 – When two cars move in the **opposite** direction with a velocity 60 km/h. the **driver** of the **first** car imagines that the **second** car moves with velocity of.....km/h

- a. Zero
- b. 30
- c. 60
- d. 120

4 – If you are in a moving train, you imagine that cars moving in the same direction on the road at smaller speed.....

- a. stop
- b. move forward
- c. move backward
- d. move with a high speed

5 – From the **types** of **motion** is (are).....motion

- a. transitional
- b. electromagnetic
- c. mechanical
- d. (B) and (C) are correct answers

6 – The motion of the following objects are transitional motion, **except** the motion of....

- a. train                      b. pendulum                      c. car                      d. bicycle

7 – In the **periodic motion**, the.....

- a. pathway is straight                      c. time is regularly repeated  
b. motion is regularly repeated                      d. speed is regularly repeated

8 – All the following are **periodic motion**, **except** the.....

- a. movement of the Moon around the Earth  
b. pendulum motion                      d. sunflower motion  
c. train motion

9 – All of the following are motions regularly repeated in equal periods of time, **except**....

- a. wave motion                      c. vibrating motion  
b. circular motion                      d. transitional motion

10 – The movement of the **Moon** around the **Earth** is considered.....motion

- a. vibrating                      b. circular                      c. wave                      d. transitional

11 – The movement of **electrons** around the **nucleus** is considered.....motion

- a. wave                      b. circular                      c. vibrating                      d. transitional

12 – **Mechanical** waves are characterized by.....

- a. their speed is greater than that of electromagnetic waves  
b. their speed is 300 million m/s  
c. they need a medium to propagate through  
d. (a) and (c)

13 – .....waves is an example of **mechanical** waves

- a. Water                      b. Light                      c. Radio                      d. Ultraviolet

14 – **Sounds** are produced due to.....

- a. vibration of medium particles                      c. electrostatic forces  
b. electromagnetic forces                      d. wave motion

15 - All the following are properties of **sound** waves, **except**.....

- a. it is from mechanical waves
- b. it is produced due to the vibration of medium particles
- c. it needs a medium to travel through
- d. it travels through free space

16 - All of the following are **electromagnetic** waves, **except** for the.....

- a. thermal (infrared) rays
- b. visible light
- c. sound waves
- d. ultraviolet rays

17 - The **speed** of **both**.....in **space** equal 300 million m/sec

- a. sound and light
- b. X-rays and gamma rays
- c. Infrared rays and water waves
- d. Ultraviolet rays and sound waves

18 - The **speed** of X-rays in space is.....the **speed** of **infrared** rays

- a. more than
- b. less than
- c. doubled
- d. equal to

19 - We see **lightning** before hearing **thunder**, because.....

- a. lightning occurs before thunder
- b. sound needs a medium to travel through
- c. the speed of light 340 m/s
- d. the speed of light is much greater than that of sound

20 - .....are used in **examining** and **curing** sets for human body

- a. Ultrasonic waves
- b. Gamma rays
- c. Infrared rays
- d. X - rays

21 - All the following are **stringed** musical instruments, **except**.....

- a. violin
- b. flute
- c. lute
- d. guitar

22 - **Sound waves** are used in all of the following, **except**.....

- a. examining and curing sets
- b. making remote sets
- c. musical instruments
- d. amplifiers



23 - .....is among the applications of **ultraviolet** rays

- a. Photographing bones
- b. Night vision apparatus
- c. Sterilizing the sets of surgical operation rooms
- d. Discovering of some swellings

24 - **X - rays** are used in.....

- a. treatment and discovering some swellings
- b. photographing bones to detect bones fractures
- c. sterilizing the sets of surgical operation rooms
- d. remote sensing instruments to photograph the Earth's surface

25 - .....are used in **examining the mineral raws in industry**

- a. X - rays
- b. Ultraviolet rays
- c. Infrared rays
- d. Gamma rays

26 - .....are used in medical purposes as the treatment and discovering some **swellings**

- a. X - rays
- b. Ultraviolet rays
- c. Infrared rays
- d. Gamma rays

27 - **Visible light** is used in all of the following applications, **except** in.....

- a. night vision apparatus
- b. television cameras
- c. photographic cameras
- d. data shows

28 - .....are used in **night vision** apparatus

- a. X - rays
- b. Ultraviolet rays
- c. Infrared rays
- d. Gamma rays

29 - **Infrared rays** are used in cooking food because they have.....**effect** property

- a. light
- b. magnetic
- c. heat
- d. electric

30 - **Infrared rays** are used in all of the following applications, **except** in.....

- a. night vision apparatus
- b. cooking food
- c. sterilization
- d. making remote sets

**8 – Give an example indicating each of the following :**

---

- 1 – Relative motion (.....)
- 2 – Transitional motion (.....)
- 3 – Vibrating motion (.....)
- 4 – Circular motion (.....)
- 5 – Wave motion (.....)
- 6** – Mechanical waves (.....)
- 7 – Electromagnetic waves (.....)
- 8 – Rays emitted from the Sun (.....)
- 9 – Stringed musical instrument (.....)
- 10 – Pneumatic musical instrument (.....)
- 11 – Rays have heat effect property (.....)

**9 – Mention one application of each of the following rays :**

---

- 1 – Sound waves : .....
- 2** – Ultraviolet rays : .....
- 3** – X – rays : .....
- 4** – Gamma rays : .....
- 5** – Visible light : .....
- 6** – Infrared rays : .....

**10 – Mention the name of rays or waves used in :**

---

- 1 – Examining and curing sets for the human body (.....)
- 2 – Sterilizing the sets of surgical operation rooms (.....)



- 3 – Photographic bones to detect the sites of bone fractures (.....)
- 4 – Studying the inner structure of mineral crystals (.....)
- 5 – Examining mineral raws in industry (.....)
- 6 – Discovering and treatment of some swellings (.....)
- 7 – Photographic cameras (.....)
- 8 - Television cameras and light show (.....)
- 9 – Night vision apparatus used by modern military forces (.....)
- 10 – Remote sensing instrument to photograph the Earth's surface using satellites (.....)
- 11 – Making remote sets to control and operate electric sets (.....)
- 12 – Cooking food (.....)
- 13 – Medical examining (.....)
- 14 – Photographing (.....)
- 15 – Communications (.....)

## II – Choose and complete :

Electromagnetic waves	Technological applications
1 – Gamma rays 2 – X-rays 3 – Visible light 4 – Infrared rays 5 – Ultraviolet rays	a – studying the inner structure of minerals crystals b – treatment of some tumors (swellings) c – night vision apparatus d – photography e – sterilize the sets of surgical operations rooms f – wireless communications

1. ....

2. ....

3. ....

4. ....

5. ....

## 12 – Mention an application for the electromagnetic waves used in :

1 – Medical field : .....

2 – Photography field : .....

3 – Heat (thermal) field :.....

4 – Remote sensing field :.....

### **I3 - Choose the odd word out then (Give reason) :**

1 – A person motion – A pendulum motion – A car motion – A train motion (.....)

The reason : .....

2 – The movement of the rotary swing – The movement of electrons around the nucleus  
The movement of the Moon around the Earth – The movement of a piece of cork on the  
surface of shaking water (.....)

The reason : .....

3 – Transitional motion – Vibrating motion – Circular motion – Wave motion (.....)

The reason : .....

4 – Radio Micro – Microwaves – Water waves – X-rays (.....)

The reason : .....

5 – Light waves – Sound waves – Water waves (.....)

The reason : .....

### **I4 – Compare between the following items :**

#### **1 – Transitional motion and periodic motion**

P.O.C	Transitional motion	Periodic motion
Definition	..... ..... ..... ..... ..... .....	..... ..... ..... ..... ..... .....
Examples	..... .....	..... .....

## 2 - Mechanical waves and electromagnetic waves (Sound waves – Light waves)

P.O.C	Mechanical waves	Electromagnetic waves
Definition	..... ..... ..... ..... .....	..... ..... ..... ..... .....
Properties (Origin)	..... ..... ..... ..... .....	..... ..... ..... ..... .....
Examples	..... ..... ..... ..... .....	..... ..... ..... ..... .....

### 15 – Answer the following questions :

1 – If a bicycle moves for 15 minutes :

- between two points
- in a circle around a certain point several times

Which of these motions is a periodic motion and which is transitional motion? Why?

.....  
.....

2 – Explain :

When watching a football match at the stadium, the voice of the internal broadcaster was **heard** from the **radio** before **hearing** his **voice** from the **internal radio** in the **stadium**

.....  
.....  
.....

3 - Describe the **motion** of each of the following objects :

1. A car moves beside your car in the **same** direction at the same speed

.....

2. Your car moves beside a **stopping** car

.....

3. A car moves beside your car in the **opposite** direction

.....

4. A train moves from **Alex.** To **Cairo.**

.....

5. Sunflower plant

.....

4 - **Mechanical** waves used in medical purposes (Give an example)

.....  
.....  
.....

5 - **Electromagnetic** waves used in medical purposes (Give an example)

.....  
.....  
.....

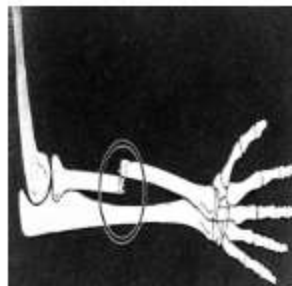
**16 - Study the following figure, then answer :**

1 - Mention the **name** of the **waves** used for this type of photography, the mention **another technological application** for these waves?

.....  
.....

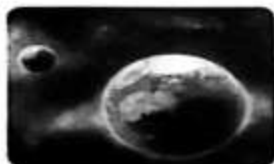
2 - What is difference between these waves and **sound** waves?.

.....



17 – Mention the type of motion represented by each figure :

(1)



(2)



(3)



(4)



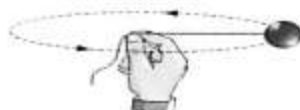
(5)



(6)



(7)



(8)



(9)



THANK YOU



## Choose ?

1. The sum of reactants masses is ..... the sum of products masses.  
☐ A More than    ☐ B Less than    ☐ C Equal to    ☐ D Double
2. Ammonia combines with ..... to produce ammonium chloride.  
☐ A Nonmetal element    ☐ B Metal element    ☐ C Compound    ☐ D Two elements
3. When burning a ribbon of magnesium, a white powder of ..... is produced.  
☐ A MgO    ☐ B  $Mg(OH)_2$     ☐ C  $MgCl_2$     ☐ D  $MgO_2$
4. Increasing the ratio of ..... in air, causes the increasing of air temperature.  
☐ A Carbon monoxide    ☐ B Carbon dioxide    ☐ C Sulphur dioxide    ☐ D Sulphur trioxide
5. .... affect the nervous system and the eye.  
☐ A Carbon oxides    ☐ B Sulphur oxides    ☐ C Nitrogen oxides    ☐ D Magnesium oxides
6. .... affect the respiratory system.  
☐ A Nitrogen oxides    ☐ B Sulphur oxides    ☐ C Nitric oxides    ☐ D Magnesium oxides
7. All of these are acidic gases except .....  
☐ A Sulphur dioxide    ☐ B Sulphur trioxide    ☐ C Ammonia    ☐ D Nitrogen dioxide
8. .... gases cause building corrosion.  
☐ A Sulphur oxides    ☐ B Nitrogen oxides    ☐ C Carbon oxides    ☐ D Ammonia
9. .... oxides are resulted during lightening.  
☐ A Sulphur    ☐ B Carbon    ☐ C Sodium    ☐ D Nitrogen
10. Ammonia combines with hydrochloric acid producing ..... of ammonium chloride.  
☐ A White ppt.    ☐ B White clouds    ☐ C Brown ppt    ☐ D Brown clouds
11. .... gas causes the greenhouse effect.  
☐ A Carbon monoxide    ☐ B Nitrogen dioxide    ☐ C Carbon dioxide    ☐ D Sulphur dioxide
12. .... causes headache, fainting and stomach-ache and may lead to death.  
☐ A Carbon dioxide    ☐ B Sulphur dioxide    ☐ C Sulphur trioxide    ☐ D Carbon monoxide





13. .... compound is resulted from the combination of a metal and a nonmetal.

- ☐ A Carbon dioxide ☐ B Hydrogen chloride ☐ C Nitrogen dioxide ☐ D Magnesium oxide

14. Ammonium chloride is resulted from the combination of ..... with conc. HCl .

- ☐ A Nitrogen ☐ B Nitrogen dioxide ☐ C Ammonia ☐ D Oxygen

15. The substances resulted from burning coal and cellulose fibers cause .....

- ☐ A Headache ☐ B Fainting ☐ C Stomach-ache ☐ D Lung cancer

16. On burning a magnesium ribbon in air a ..... powder is formed.

- ☐ A White ☐ B Black ☐ C Yellow ☐ D Brown

17. The mass of a molecule of ( $\text{NO}_2$ ) is ..... the mass of a molecule of ( $\text{NO}$ ).

- ☐ A Less than ☐ B More than ☐ C Equal to ☐ D Half

18. By increasing the ratio of carbon dioxide in air, the temperature of air .....

- ☐ A Decreases ☐ B Increases ☐ C Stays stable ☐ D Doesn't change

19. Burning cigarettes causes .....

- ☐ A Headache ☐ B Stomach-ache ☐ C Fainting ☐ D Lung cancer

20. Oxygen combines with ..... compound produces a gas that causes greenhouse effect.

- ☐ A Carbon ☐ B Carbon monoxide ☐ C Nitrogen dioxide ☐ D Sulphur

21. The bar used in electromagnet is made up of .....

- ☐ A Isolated copper ☐ B Soft iron ☐ C Aluminium ☐ D Copper

22. From the forces inside living systems .....

- ☐ A Biological force ☐ B Brakes ☐ C Inertia ☐ D Electromagnetic

23. .... is produced from combination of oxygen with a nonmetal.

- ☐ A Magnesium oxide ☐ B Hydrogen chloride ☐ C Carbon dioxide ☐ D Ammonium chloride

24. Electric current has a ..... effect.

- ☐ A Kinetic ☐ B Magnetic ☐ C Potential ☐ D Nuclear

25. .... converts mechanical energy into electric energy.

- ☐ A Electromagnet ☐ B Electric motor ☐ C Dynamo ☐ D Electric fan



26. The pendulum is an example of a ..... motion.

- ☐ A Vibrating      ☐ B Wave      ☐ C Transitional      ☐ D Circular

27. The weight of an object is measured in .....

- ☐ A Kilogram      ☐ B Gram      ☐ C Newton      ☐ D  $\text{m/s}^2$

28. If a force acts on a moving body, at the same direction of the motion, its speed.....

- ☐ A Decreases      ☐ B Increases      ☐ C Reduces      ☐ D Doesn't change

29. Car brakes is an application of the ..... Force.

- ☐ A Centrifugal      ☐ B Friction      ☐ C Inertia      ☐ D Attraction

30. Earth's gravitational acceleration is measured in .....

- ☐ A Sec/m      ☐ B m/sec      ☐ C  $\text{m/sec}^2$       ☐ D Newton

31. The object's weight on Earth's surface is 20 N, so its weight on a mountain may equal .....

- ☐ A 200 Newton      ☐ B 21 newton      ☐ C 20 newton      ☐ D 19.98 newton

32. The weight of a man at the North pole is ..... its weight at the equator.

- ☐ A Less than      ☐ B Greater than      ☐ C Equal to      ☐ D Half

33. The weight of an object equals .....

- ☐ A  $\frac{m}{g}$       ☐ B  $m \times g$       ☐ C  $W \times g$       ☐ D  $\frac{g}{m}$

34. On approaching the earth's surface, the weight of the object .....

- ☐ A Increases      ☐ B Decreases      ☐ C Becomes half      ☐ D Remains constant

35. When an object's mass decreases, its weight .....

- ☐ A Increases      ☐ B Doesn't change      ☐ C Decreases      ☐ D Is doubled

36. The weight of the body is always is ..... its mass.

- ☐ A More than      ☐ B Less than      ☐ C Half      ☐ D Equal to

37. If object's mass at the north pole is 60 kg, so its mass at the equator equals .....

- ☐ A 59 kg      ☐ B 59 N      ☐ C 60 kg      ☐ D 62 kg





38. If a mass of one of the reactants is decreased to half, the mass of the product would .....

- ☐ A Increases ☐ B Decreases ☐ C Stay constant ☐ D Is doubled

39. .... changes electric energy into magnetic energy.

- ☐ A Dynamo ☐ B Electromagnet ☐ C Brakes ☐ D Electric motor

40. .... is used in making cranes and electric bells.

- ☐ A Electromagnet ☐ B Electric motor ☐ C Dynamo ☐ D Electric generator

41. .... is used in making blender and fan.

- ☐ A Electromagnet ☐ B Dynamo ☐ C Electric motor ☐ D Brakes

42. Strong nuclear energy is used in .....

- ☐ A Scientific research ☐ B Industry ☐ C Medicine ☐ D Producing electricity

43. The scientist who discovered the Earth's gravitational force is .....

- ☐ A Plank ☐ B Archimedes ☐ C Coulomb ☐ D Newton

44. The work done to lift an object upwards ..... by increasing the object's mass.

- ☐ A Decreases ☐ B Increases ☐ C Stays constant ☐ D Doesn't change

45. Multiplying the object's mass by earth's gravitational acceleration equals object's .....

- ☐ A Mass ☐ B Speed ☐ C Weight ☐ D Volume

46. The bar used in the electromagnet is made up of .....

- ☐ A Steel iron ☐ B Wrought iron ☐ C Aluminum ☐ D Isolated copper

47. The electromagnet is used in the manufacture of the .....

- ☐ A Calculator ☐ B Electric bell ☐ C Microscope ☐ D Watch

48. The electric motor is used in the manufacture of the .....

- ☐ A Electric bell ☐ B Mixer ☐ C Radio ☐ D watch

49. The radiation used in medicine are produced from a ..... force.

- ☐ A Gravitational ☐ B Electromagnet ☐ C Strong nuclear ☐ D Weak nuclear



50. All of the following are electromagnetic waves except ..... waves.

- ☐ A Sound ☐ B Light ☐ C x-rays ☐ D Radio

51. Atomic bomb is an application on ..... force.

- ☐ A Gravitational ☐ B Magnetic ☐ C Strong nuclear ☐ D Weak nuclear

52. Egypt seeks to use ..... energy in producing electricity.

- ☐ A Nuclear ☐ B Magnetic ☐ C Gravitational ☐ D Electromagnetic

53. Electromagnet is made up of an isolated ..... wire coiling around a bar of iron.

- ☐ A Aluminium ☐ B Iron ☐ C Copper ☐ D Silver

54. .... force makes objects resist the change in their rest or motion state.

- ☐ A Friction ☐ B Gravitational ☐ C Biological ☐ D Inertia

55. An atom stores a massive amount of ..... energy inside its nucleus.

- ☐ A Mechanical ☐ B Magnetic ☐ C Friction ☐ D Nuclear

56. A passenger ..... in a moving bus, When the bus stops suddenly.

- ☐ A Is rushed forward ☐ B Doesn't move ☐ C Is rushed up ☐ D Is rushed back

57. By increasing the friction force, the speed of the moving body .....

- ☐ A Increases ☐ B Decreases ☐ C Doesn't change ☐ D duplicates

58. Car brakes are an application on ..... force.

- ☐ A Inertia ☐ B Friction ☐ C Nuclear ☐ D Gravitational

59. .... force is the force that causes motion in living systems.

- ☐ A Gravitational ☐ B Inertia ☐ C Biological ☐ D Friction

60. .... Is an application on the inertia force.

- ☐ A Car brakes ☐ B Car tyres ☐ C Car engine ☐ D Car safety belt

61. Friction always affects at a/an ..... Direction of motion.

- ☐ A Same ☐ B Parallel ☐ C Opposite ☐ D Perpendicular





62. Friction causes a loss in mechanical energy that is converted into ..... energy.

- ☐ A Light ☐ B Heat ☐ C Magnetic ☐ D Electric

63. Lubrication of machines reduces the ..... force.

- ☐ A Inertia ☐ B Electric ☐ C Friction ☐ D Magnetic

64. Car tyres are covered with a/an ..... substance to increase friction force with the road.

- ☐ A Smooth ☐ B Soft ☐ C Oily ☐ D Coarse

65. Electric fan still works after cutting of electricity due to the ..... force.

- ☐ A Electromagnetic ☐ B Inertia ☐ C Friction ☐ D Magnetic

66. .... is the measuring unit of the object's speed.

- ☐ A m/sec ☐ B Metre ☐ C  $\text{m/sec}^2$  ☐ D Newton

67. .... is the covered distance by an object in a unit time.

- ☐ A Mass ☐ B Inertia ☐ C Weight ☐ D Speed

68. The movement of planets around the sun is a/an ..... motion.

- ☐ A Transitional ☐ B Circular ☐ C Vibrating ☐ D Wave

69. A train motion is one of the ..... motion.

- ☐ A Transitional ☐ B Wave ☐ C Vibrating ☐ D Periodic

70. All of these are from periodic motion except the motion of .....

- ☐ A Fan ☐ B Pendulum ☐ C Train ☐ D Moon around sun

71. .... waves need a medium to transfer through.

- ☐ A Sound ☐ B Light ☐ C Radio ☐ D x-rays

72. .... waves are from the mechanical waves.

- ☐ A Radio ☐ B Ultraviolet ☐ C Water ☐ D Light

73. .... waves can't spread in vacuum.

- ☐ A Light ☐ B Microwave ☐ C Radio ☐ D Sound



74. The speed of light is ..... the speed of sound.

- ☐ A Less than      ☐ B Equal to      ☐ C More than      ☐ D Smaller than

75. All of these waves have very high speed except ..... waves.

- ☐ A Light      ☐ B Radio      ☐ C Sound      ☐ D Microwave

76. The speed of electromagnetic waves equals ..... millions m/sec.

- ☐ A 3      ☐ B 30      ☐ C 300      ☐ D 3000

77. The speed of electromagnetic waves equals ..... m/sec.

- ☐ A  $5 \times 10^8$       ☐ B  $3 \times 10^8$       ☐ C  $8 \times 10^3$       ☐ D  $3 \times 10^5$

78. .... waves need a medium to transfer through.

- ☐ A Radio      ☐ B Inferred      ☐ C Light      ☐ D Sound

79. All of these are electromagnetic waves except ..... Waves.

- ☐ A Light      ☐ B Sound      ☐ C Radio      ☐ D Ultraviolet

80. .... are used in the sterilization of surgical operations sets.

- ☐ A Inferred rays      ☐ B Gamma rays      ☐ C Ultraviolet rays      ☐ D X-rays

81. .... are used in discovering and treatment of some tumors.

- ☐ A Gamma rays      ☐ B Inferred rays      ☐ C Visible light      ☐ D X-rays

82. .... are used in making night vision apparatus.

- ☐ A Ultraviolet rays      ☐ B Gamma rays      ☐ C Inferred rays      ☐ D X-rays

83. Inferred rays have a/an ..... effect.

- ☐ A Electric      ☐ B Magnetic      ☐ C Heat      ☐ D Light

84. .... are used in detecting site of bone fractions.

- ☐ A Sound waves      ☐ B Gamma rays      ☐ C Inferred rays      ☐ D X-rays

85. .... is/are used in photographic camera.

- ☐ A Visible light      ☐ B Inferred rays      ☐ C X-rays      ☐ D Ultraviolet rays





86. .... are used in studying and examining minerals.

- ☐ A Ultraviolet rays    ☐ B X-rays    ☐ C Gamma rays    ☐ D Inferred rays

87. Remote sensing instruments in satellites use ..... waves.

- ☐ A Gamma    ☐ B Sound    ☐ C Inferred    ☐ D Ultraviolet

88. All of these have medical purposes except .....

- ☐ A Ultraviolet rays    ☐ B Inferred rays    ☐ C X-rays    ☐ D Gamma rays

89. The motion of a simple pendulum is from the ..... motion.

- ☐ A Circular    ☐ B Wave    ☐ C Transitional    ☐ D Vibrating

90. .... is/are used in making remote control of operating electric sets as TV.

- ☐ A Visible light    ☐ B Gamma rays    ☐ C Inferred rays    ☐ D Ultraviolet

91. .... are used in cooking food as they have a heat effect.

- ☐ A Inferred rays    ☐ B Ultraviolet rays    ☐ C Gamma rays    ☐ D X-rays

92. .... waves are used in examining the sets of the human body.

- ☐ A Gamma    ☐ B Ultraviolet    ☐ C Ultrasonic    ☐ D Light

93. All of these are considered as transitional motion except the motion of a .....

- ☐ A Train    ☐ B Car    ☐ C Bicycle    ☐ D Simple pendulum

94. The movement of electrons around the nucleus is a ..... motion.

- ☐ A Wave    ☐ B Circular    ☐ C Vibrating    ☐ D Transitional

95. All of these are from periodic motion except the motion of the .....

- ☐ A Sound waves    ☐ B Sunflower    ☐ C Car    ☐ D Simple pendulum

96. .... waves are produced from the vibrating of medium particles.

- ☐ A Light    ☐ B Radio    ☐ C Sound    ☐ D Ultraviolet

97. All the following are stringed musical instruments except .....

- ☐ A Violin    ☐ B Flute    ☐ C Guitar    ☐ D Lute



98. .... is a pneumatic musical instrument.

- ☐ A Lute ☐ B Guitar ☐ C Violin ☐ D Reed pipe

99. Amplifiers are an applications on ..... waves.

- ☐ A Ultraviolet ☐ B Sound ☐ C Radio ☐ D Microwaves

100. Inferred rays are used in cooking as they have a .....effect.

- ☐ A Light ☐ B Magnetic ☐ C Thermal ☐ D Electric

101. .... is/are used in data shows and TV cameras.

- ☐ A Inferred waves ☐ B Visible light ☐ C Sound waves ☐ D Ultraviolet rays

102. The position of the object changes between initial and final in the ..... motion.

- ☐ A Periodic ☐ B Transitional ☐ C Wave ☐ D Circular

103. The motion of the ..... isn't regularly repeated at equal periods of time.

- ☐ A Pendulum ☐ B Sunflower ☐ C Train ☐ D Water waves

104. .... motion is the change in object's position or direction relative to a fixed point.

- ☐ A Vibrating ☐ B Circular ☐ C Relative ☐ D Periodic

105. .... is/are used in photographing bones.

- ☐ A Visible light ☐ B Gamma rays ☐ C X-rays ☐ D Ultraviolet waves

106. .... are used in healing and discovering some swellings.

- ☐ A Gamma rays ☐ B X-rays ☐ C Inferred rays ☐ D Ultraviolet rays

107. Inferred and ..... rays are emitted from the sun.

- ☐ A Ultraviolet ☐ B Radio ☐ C Microwave ☐ D Ultrasonic

108. Dental treatments tools are exposed to ..... before using them.

- ☐ A Gamma rays ☐ B Ultraviolet rays ☐ C X-rays ☐ D Visible light

109. .... causes buildings' corrosion.

- ☐ A  $\text{CO}_2$  ☐ B  $\text{NO}_2$  ☐ C  $\text{MgO}$  ☐ D  $\text{SO}_3$





110. All of the following from the fundamental phenomena except .....

- ☐ A Nuclear explosions ☐ B Wind motion ☐ C Water motion ☐ D Lightning

111. An object's weight on the Earth's surface is related to ..... forces.

- ☐ A Electromagnetic ☐ B Gravitational ☐ C Weak nuclear ☐ D Strong nuclear

112. When the horse is tripped, the rider is rushed forward due to the ..... force.

- ☐ A Friction ☐ B Centrifugal ☐ C Inertia ☐ D Gravitational

113. All of these are periodic motion except ..... motion.

- ☐ A Moon around Earth ☐ B Projectiles ☐ C Sunflower ☐ D Pendulum

114. .... motion isn't from the wave motion.

- ☐ A Pendulum ☐ B Sound ☐ C Light ☐ D Water

115. .... Is the measuring unit of force.

- ☐ A Kilogram ☐ B Second ☐ C Newton ☐ D m/sec

116. .... are used in night vision devices.

- ☐ A Gamma rays ☐ B Inferred rays ☐ C Ultraviolet rays ☐ D X-rays

117. Increasing the ratio of ..... gas leads to the increase of the atmosphere temperature.

- ☐ A CO ☐ B SO<sub>3</sub> ☐ C SO<sub>2</sub> ☐ D CO<sub>2</sub>

118. The objects fall down by the effect of ..... force.

- ☐ A Magnetic ☐ B Nuclear ☐ C Gravitational ☐ D Electromagnetic

119. The motion of the ..... is a circular motion.

- ☐ A Train ☐ B Pendulum ☐ C Swing ☐ D Moon around sun

120. A force is an effect that may change the ..... Of the object.

- ☐ A Mass ☐ B Weight ☐ C State ☐ D Shape



Prep. 1

Date: 137

NO:

1. c	13. d	26. a	38. b	50. a	62. b
2. c	14. c	27. c	39. b	51. c	63. c
3. a	15. d	28. b	40. a	52. a	64. d
4. b	16. a	29. b	41. c	53. c	65. b
5. c	17. b	30. c	42. d	54. d	66. a
6. b	18. b	31. d	43. d	55. d	67. d
7. c	19. d	32. b	44. b	56. a	68. b
8. a	20. b	33. b	45. c	57. b	69. a
9. d	21. b	34. a	46. b	58. b	70. c
10. b	22. a	35. c	47. b	59. c	71. a
11. c	23. c	36. a	48. b	60. d	72. c
12. d	24. b	37. c	49. d	61. c	73. d
	25. c				

74. c	86. b	98. d	110. a
75. c	87. c	99. b	111. b
76. c	88. b	100. c	112. c
77. b	89. d	101. b	113. b
78. d	90. c	102. b	114. a
79. b	91. a	103. c	115. c
80. c	92. c	104. c	116. b
81. a	93. d	105. c	117. d
82. c	94. b	106. a	118. c
83. c	95. c	107. a	119. d
84. d	96. c	108. b	120. c
85. a	97. b	109. d	



## Choose the correct answer

1-the chemical reaction causes.....

a-Breaking up bond between reactant then form bond between product

b-Breaking bond between product then form bond between reactant

c-Forming bond between reactant to break bond between product

2-Mass of reactant must be .....mass of product

(equal to - more than - less than )

3-Number of atom of reactant .....number of atoms in product

(equal to - more than - less than )

4-Harms of carbon monoxide is.....

(building corrosion - headache- lungs cancer)

5-All of these gases are acidic gases except.....

(Sulphur oxide - nitrogen oxides - ammonia)

6-Burning of cellulose fibers causes.....

(building corrosion - headache- lungs cancer)



7-Which has causes increased air temperature..

(Carbon dioxide - nitrogen oxides - carbon monoxide)

8-Chemical reactions are used in.....

(food industries - medicine - fertilizers - all )

8-if the molecule of carbon dioxide consists of one atom of carbon and two atoms of oxygen by knowing the mass of carbon  $c = 12$  and oxygen  $= 16$ ,so the mass of carbon dioxide equals .....

(22 - 44 - 88 )

8-which of the following is balanced chemical equation ?



9-direct combination reaction takes place between.....

(two non-metals \ metal and non-metal \ compound and compound - all)

10-when ammonia combines with concentrated hydrochloric acid form .....of ammonium chloride

(white ppt - brown clouds - white clouds)



11-increasing ratio of .....gas causes increase air temperature

(carbon dioxide - sulphur dioxide -nitrogen oxide )

12-.....is (are )not acidic gases

(sulphur oxides - carbon oxides - methane )

13- burning of .....causes lungs cancer

(carbon dioxide - nitrogen oxide - cellulose fibers)

14- .....harmed to nervous system and eyes

(carbon dioxide - nitrogen oxide - carbon monoxide)

15-.....oxides are resulted during lightning

(carbon - nitrogen - sulphur )

16-according to law of constant ratio



a-48 gm of (Mg)combines with 32 gm(O)to form 80 gm of (MgO)

B-24 gm of (Mg)combines with 16gm (O)to form 80 gm of (MgO)

C-12 gm of (Mg)combines with 8gm (O)to form 80 gm of (MgO)

d- all previous answers

17-natural fundamental forces are.....

(gravitational - electromagnetic - nuclear - all previous answers)

18-application of friction is .....

(safety belt - car brakes - dynamo)

19-application of inertia.....

(safety belt - car brakes - dynamo)

20- strong nuclear force is used in .....

(generate electricity - researches - medical field)

21-if mass increases to double ,weight .....

(increases to double -decreases to half - doesn't change)

22-weight of object at two poles is .....at equator

(more than - less than - equal to )

23-electric motor is used in making .....

(radio- bell - mixer )

24-weak nuclear force is used in .....

(military purpose - scientific researches - produce electricity)

25-if mass of object 20kg ,weight .....

(2N - 20N - 200N)

26-.....Changes mechanical energy into electric energy

(generator - electromagnet - motor)

27-.....Changes electric energy into mechanical energy

(generator - electromagnet - motor)

28-the electromagnet is used in .....

(fan -crane - car dynamo)

29-bar of electromagnet is made up of .....

(copper - wrought iron - steel iron)

30-electromagnet force affect operations except.....

(Dynamo - motor - electromagnet - car internal combustion of fuel )

31-idea of nuclear bomb depends on .....force

(electromagnetic - nuclear - strong nuclear)

32-the inertia force affects the .....

(moving - static - static and motion )

33-passengers rushed forward when driver used brakes due to .....

(force of friction - force of inertia - centrifugal)

34-electric fan still works for few seconds after cutting electricity due to .....

(force of friction - force of inertia - centrifugal)

35-friction is affected on .....of movement

(against - same - perpendicular)

36-Friction causes great loss of mechanical energy due to conversion into .....energy

(mechanical - heat - electric )

37-Idea of machine lubricating depends on decreasing.....

(Friction - inertia - gravitational)

38-contraction and relaxing of muscles is an example for .....

(friction force - force inside living organism - inertia)

39-car tires are covered with very coarse substance to .....

(Increase friction - decrease friction - reduce air resistance)

40-water transport from soil to parts of plant by effect of .....

(friction force - force inside living organism - inertia)

41-the heart muscle contraction and relaxation are inferred from .....

a-movement of food in digestive system

b-pulse inside vessels

c-inhalation and exhalation

42-when driver used brakes ,passengers rushed.....

(forward - backward - upside down)

43-Liquids transfer from .....

a-high concentration to low concentration

b-low concentration to high concentration

c-outside to inside

44-from examples for force inside living organism

.....

(Pulse inside vessels - inertia - brakes - all answers)

45-All the following are periodic motion except .....

(pendulum - planets motion - train motion)

46-movement of electrons around nucleus is  
.....motion

(vibrating - circular - translational )

47-.....waves is an mechanical waves

(light - water - radio )

48-sound waves are used in all the following except  
.....

(examine and curing set- making remote sets -  
amplifiers)

49-.....is an electromagnetic waves

(radio - infrared - x-rays - all)

59-.....are used in night vision apparatus

(infrared - gamma rays - x-rays )

51-infrared rays are used in cooking food because they  
have .....effect

(light - heat - magnetic )

52-speed of both of .....in space 300 millions m\s

(sound and light - x-rays and gamma rays - ultraviolet  
and sound)

53-.....are used in medical purpose

(x-rays - ultraviolet - gamma rays)



54-speed of light is .....sound

(less than - more than - equal to )

55-all the following are electromagnetic waves except....

(sound - light - infrared)

56-in periodic motion ,the .....

(pathway is straight -speed is regularly repeated - motion is regularly repeated)

57-when two cars move in the same direction with velocity 80 km\h, the driver of the first car imagines that the second car moves with velocity .....km\h

(zero - 80 - 60 )

58-all of these are examples for translational motion except .....

(car - train - pendulum )

59-visible light is used in all the following except....

(camera - television - remote sets)

60.....stringed instrument

(flute - guitar - violin - guitar and violin)

## ➤ Choose:

- 1) If the molecule of carbon dioxide consists of one atom of carbon and two of oxygen ,so the mass of two molecules of carbon dioxides equal.....gm  $C = 12$      $O = 16$
- a.22                      b. 44                      c. 88                      d.100
- 2) The sum of reactants masses in any chemical reaction is ..... the sum of the product masses.
- a. doubled      b. less than                      c. equal to      d. more than
- 3) Earth's gravitational acceleration decreases as we.....
- a. Raises up                      b. get down                      c. move away                      d. a,c
- 4) .....Na + Cl<sub>2</sub>  $\longrightarrow$  .....NaCl
- a.2,2                      b. 3,3                      c. 2,1                      d. 1,2
- 5) .....are from forces originated due to motion.
- a. biological forces      b. inertia                      c. friction force                      d. b,c
- 6) If your car moves beside a stopping car, you imagine the other car.....
- a.moves forward                      b. moves backward
- c. moves in the opposite direction                      d. b, c
- 7) H<sub>2</sub> + Cl<sub>2</sub>  $\longrightarrow$  .....HCl
- a. 2                      b. 3                      c. 1                      d. 4
- 8) .....is the unit of speed.
- a. meter                      b. sec.                      c. m.sec.                      d. m/sec



9) ..... is a white cloud formed due to combination of ammonia and hydrochloric acid.

a. ammonium chloride

b.  $\text{NH}_3\text{Cl}$

c. ammonium hydroxide

d. a,b

10)  $\text{NaNO}_3 \xrightarrow{\Delta} \text{NaNO}_2 + \text{O}_2$  this equation.....

a. isn't balanced.

b. doesn't achieve the law of conservation of matter.

c. achieves the law of conservation of matter.

d. a,b

11) The chemical compound is formed from combination by.....

a. constant masses

b. variable masses

c. constant weight ratio

d. variable weight ratio

12) All of the following are types of direct combination reactions except.....

a. combination between metal and non-metal.

b. combination between compound and compound.

c. combination between non-metal and non-metal.

d. combination between metal and metal.

13)  $2\text{Mg} + \text{O}_2 \xrightarrow{\Delta} 2\text{MgO}$ , represents a reaction between.....

a. two non-metals

b. two metals

c. metal and non-metal

d. two compounds

14) All the following are importance of chemical reaction except.....

a. Obtain useful substances.

b. Produce pollutant gases.

c. Obtain electric energy.

d. Prepare compounds used in industries.







a. violin ,flute  
b. reed pipe, guitar  
c. lute ,guitar  
d. flute, guitar

a. UV      b. IR      c. X-rays      d. gamma rays

a. motion      b. relative motion      c. speed      d. reference point

a. UV      b. IR      c. X-rays      d. gamma rays

a. Water waves ,sound  
b. microwaves, infra-red  
c. gamma rays, radio waves  
d. X-rays, UV

a. sulphur trioxide  
b. carbon dioxide  
c. carbon monoxide  
d. nitrogen oxide

a. Electric ,mechanical  
b. mechanical, electric  
c.magnetic, electric  
d. electric, magnetic

a. Friction force    b. inertia    c. biological forces    d. a, b, c

a. Visible light ,UV ,IR  
b. UV ,X-rays , gamma rays  
c. gamma rays, visible light ,IR  
d. UV ,IR ,X-rays



- 32) .....are acidic gases affect nervous system.
- a. carbon monoxide
  - b. nitrogen oxides
  - c. sulphur oxides
  - d. carbon oxides
- 33) When percentage of .....increases in atmospheric air it causes.....
- a.  $\text{CO}_2$ , electromagnet
  - b.  $\text{CO}_2$ , greenhouse
  - c.  $\text{CO}$ , greenhouse
  - d.  $\text{SO}_2$ , greenhouse
- 34) .....and .....need a medium to travel through.
- a. Light, sound
  - b. microwaves, infra-red
  - c. sound, water wave
  - d. X-rays, UV
- 35) Contract and relax of muscles helps the body to .....
- a. Grow
  - b. move
  - c. become smaller
  - d. no correct answer
- 36) We use .....and .....to decrease the effect of friction force.
- a. Rough surface, oil
  - b. oil, lubricant
  - c. smooth surface, motor
  - d. all the above
- 37) ....., ..... are from pneumatic musical instruments.
- a. violin, flute
  - b. reed pipe, flute
  - c. lute, guitar
  - d. flute, guitar
- 38) Carbon dioxide ..... The penetration of thermal radiation causing increase temperature.
- a. Allows
  - b. prevents
  - c. facilitates
  - d. a, c
- 39) Fuel burning's products are .....
- a. carbon oxides
  - b. sulphur oxides
  - c. nitrogen oxides
  - d. a, b, c
- 40) .....produce due to vibration of medium particles.
- a. light
  - b. ultra violet
  - c. sound
  - d. microwaves



- 41) Burning paper and celluloses fibre causes.....  
 a.air pollution      b. affect eye      c. increase temperature      d. a, c
- 42) .....  $\text{H}_2 + \text{O}_2 \longrightarrow$  ..... $\text{H}_2\text{O}$   
 a.2,3                      b. 3,2                      c. 2,2                      d. 2,4
- 43) The reaction in which all substances join together called.....  
 a.direct combination reaction                      b. burning reaction  
 c. thermal decomposition reaction                      d. no correct answer
- 44) The dynamo change the .....energy into .....energy.  
 a. Electric ,mechanical                      b. mechanical, electric  
 c.magnetic, electric                      d. electric, magnetic
- 45) .....is the change in object position relative to a fixed point.  
 a. motion      b. relative motion      c. speed      d. reference point
- 46) Motion of water wave is .....motion.  
 a. Vibrating                      b. wave                      c. periodic                      d. b ,c
- 47) .....reaction is from reaction that produces a lot of pollutant gases.  
 a.direct combination reaction                      b. burning reaction  
 c. thermal decomposition reaction                      d. no correct answer
- 48) The weight of object at the pole of earth is .....its weight at the equator.  
 a. More than      b. less than      c. equal to      d.no correct answer
- 49) .....is the distance covered in one second.  
 a. relative motion      b. motion      c. speed      d. reference point
- 50) .....gases results during lighting.  
 a. carbon oxides                      b. nitrogen oxides  
 c. sulphur oxide                      d. carbon dioxide



51) .....causes building corrosion.

- a. carbon oxides
- b. nitrogen oxides
- c. sulphur trioxide
- d. carbon dioxide

52) Electromagnet consists of .....

- a. copper wire
- b. bar of wrought iron
- c. electric current
- d. a, b, c

53) The wall doesn't move when you push it, as the acting force is.....

- a. less than required
- b. improper
- c. proper
- d. b, c

54) Motion of simple pendulum is .....motion.

- a. Vibrating
- b. wave
- c. translational
- d. a, c

55) .....used in making night vision systems.

- a. UV
- b. IR
- c. X rays
- d. gamma rays

56) All the following are fundamental force in nature except.....

- a. gravitational forces.
- b. electromagnetic forces.
- c. nuclear explosion.
- d. nuclear forces.

57) As the mass increases, the gravitational force .....

- a. increases
- b. decreases
- c. doesn't change
- d. a, b

58) All the following are benefits of friction force except.....

- a. Generate heat energy in machines.
- b. Prevent slipping during walking.
- c. Helping stopping and moving cars.
- d. Help in burning match.







- 67) The mass of object in earth is .....its mass on moon if you know that the gravitational force of earth more than moon.  
a. More than    b. less than    c. equal to    d.no correct answer
- 68) All the following are application of inertia except.....  
a. lighting match  
b. coin resists movement and remain static.  
c. football player rush forward if he is trapped.  
d. the passenger rush back on moving suddenly.
- 69) The relation between friction force and the speed of the object is .....  
a. Direct                      b inverse                      c.no relation                      d. a ,b
- 70) ..... is used in making cranes.  
a. Motor              b. dynamo              c. electromagnet              d. generator
- 71) The passengers in a moving car are .....once the car stops suddenly.  
a.rushed back                      b. rush forward  
c. stop                      d. a ,b ,c
- 72) The friction between the tyre and bicycle generates force .....  
a.in the same direction of motion.                      b. parallel to motion  
c.in the opposite direction of motion.                      d. perpendicular to motion
- 73) Remote sets make by .....  
a. UV                      b.IR                      c. X rays                      d. gamma rays
- 74) ..... is used in making electric mixer.  
a.Motor              b. dynamo              c. electromagnet              d. generator



75) .....used in bike to generate electricity.

- a. Motor      b. dynamo      c. electric generator      d. b ,c

76) Electromagnet change the .....energy into .....energy.

- a. Electric ,mechanical      b. mechanical, electric  
c.magnetic, electric      d. electric, magnetic

77) Weak nuclear forces used in.....

- a. medicine      b. researches      c. industry      d. a, b, c



# Answers

1. 88
2. Equal to
3. A, c
4. 2,2
5. B,c
6. B, c
7. 2
8. M/sec.
9. Ammonium chloride
10. A, b
11. Constant weight ratio
12. Combination Between metal and metal
13. Metal and non-metal
14. Produce pollutant gases
15. Microwave, radio waves
16. 49,5
17. IR, visible light
18. More than
19. Inertia
20.  $\text{NH}_3 + \text{HCl} \xrightarrow{\text{conc.}} \text{NH}_4\text{Cl}$
21. Carbon monoxide
22. A, c
23. Lute, guitar
24. X rays
25. Relative motion
26. UV
27. Water wave, sound
28. Sulphur trioxide
29. Electric, mechanical
30. Biological forces
31. UV, x ray, gamma rays
32. Nitrogen oxides
33.  $\text{CO}_2$ , greenhouse
34. Sound, water waves
35. Move
36. Oil, lubricant
37. Reed pip, flute
38. Prevents
39. A, b, c
40. Sound
41. Air pollution
42. 2,2
43. Direct combination reaction
44. Mechanical, electric
45. Motion
46. B, c



- |                                      |   |
|--------------------------------------|---|
| 47. Burning                          | 72. In the opposite direction of motion |
| 48. More than                        | 73. IR                                  |
| 49. Speed                            | 74. Motor                               |
| 50. Nitrogen oxides                  | 75. B, c                                |
| 51. Sulphur trioxide                 | 76. Electric, magnetic                  |
| 52. A, b, c                          | 77. A, b, c                             |
| 53. Improper                         |   |
| 54. A                                |   |
| 55. IR                               |   |
| 56. Nuclear explosion                |   |
| 57. Increases                        |   |
| 58. Generate heat energy in machines |   |
| 59. Lower, higher                    |   |
| 60. Circular                         |   |
| 61. Mechanical, electric             |   |
| 62. A, b                             |   |
| 63. A, c                             |   |
| 64. Pump                             |   |
| 65. Inertia                          |   |
| 66. A, b                             |   |
| 67. Equal to                         |   |
| 68. Lighting match                   |   |
| 69. Inverse                          |   |
| 70. Electromagnet                    |   |
| 71. Rush forward                     |   |